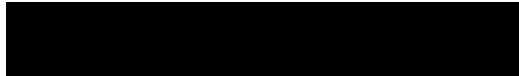


EXHIBIT 2



1

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE DISTRICT OF DELAWARE
3
4 TQ DELTA LLC,)
5 Plaintiff,)
6 v.) C.A. No. 13-1835-RGA
7 2WIRE, INC.,)
8 Defendant.)
9
10 J. Caleb Boggs Courthouse
11 844 North King Street
12 Wilmington, Delaware
13
14 Monday, May 20, 2019
15 9:00 a.m.
16 Trial Volume I
17
18 BEFORE: THE HONORABLE RICHARD G. ANDREWS, U.S.D.C.J.
19
20 APPEARANCES:
21
22 FARNAN LLP
23 BY: MICHAEL J. FARNAN, ESQUIRE
24
25 -and-
26
27 MCANDREWS HELD & MALLOY, LTD
28 BY: PETER J. MCANDREWS, ESQUIRE
29 BY: PAUL W. MCANDREWS, ESQUIRE
30 BY: THOMAS WIMBISCUS, ESQUIRE
31 BY: JAMES MURPHY, ESQUIRE
32
33 -and-
34
35 ROBINS KAPLAN LLP
36 BY: DAVID A. PRANGE, ESQUIRE
37
38 For the Plaintiff

3

1 THE COURT: Can I see it?
2 MR. MURPHY: Yes. May I approach, Judge?
3 THE COURT: Okay.
4 MR. MURPHY: It's Slide 8, Judge, from the
5 2Wire's presentation, and we believe it's misleading, highly
6 prejudicial, and just incorrect. And the reason, Judge, is
7 that they're asking to essentially taint this jury right out
8 of the starting gate by arguing -- presenting to them an
9 issue that is irrelevant to the two issues that are
10 irrelevant to this case. The one is whether or not 2Wire
11 knew about our patents --
12 THE COURT: Right.
13 MR. MURPHY: -- not just that they're relevant.
14 THE COURT: I understand your position.
15 MR. MURPHY: Yeah.
16 THE COURT: What's the response?
17 MS. CHANG: Your Honor, this is Cindy Chang for
18 defendant, 2Wire.
19 THE COURT: Okay.
20 MS. CHANG: And it is our position that the
21 statements regarding no evidence assist to our presenting
22 context regarding 2Wire's products and the development of
23 its products outside of TQ Delta's involvement.
24 THE COURT: So I agree with plaintiff. These
25 are essentially arguments that are irrelevant to the only

2

1 APPEARANCES CONTINUED:
2 MORGAN LEWIS
3 BY: JODY C. BARILLARE, ESQUIRE
4
5 -and-
6
7 GOODWIN PROCTER, LLP
8 BY: BRETT SCHUMAN, ESQUIRE
9 BY: RACHEL WALSH, ESQUIRE
10 BY: DOUGLAS KLINE, ESQUIRE
11 BY: CINDY CHANG, ESQUIRE
12
13 For the Defendant
14
15 *** PROCEEDINGS ***
16
17 THE COURT: All right. Good morning, everyone.
18 Please be seated.
19 So basically is there anything you want to
20 discuss this morning?
21 MR. MURPHY: Yes, there is, Your Honor.
22 THE COURT: Good morning.
23 MR. MURPHY: Good morning, Your Honor. Jim
24 Murphy for TQ Delta. We have one issue with the objection
25 to the slide presentation of 2Wire.
26 THE COURT: Okay.
27 MR. MURPHY: The parties have -- the issue has
28 been teed up. The parties have met and conferred.
29 THE COURT: Yeah, I believe you.
30 MR. MURPHY: Yeah. The issue has to do with one
31 slide, Judge. They --

4

1 claims that are in here which are direct infringement;
2 right?
3 MS. CHANG: So --
4 THE COURT: So the state of mind of 2Wire is not
5 at issue, and whether or not they knew about the patents is
6 irrelevant. It's possible that whether or not they copied
7 them could be relevant if there's -- you know, that's hard
8 to tell for me in terms of -- until I hear what sort of
9 thing is going on in the world of invalidity. So I'm going
10 to sustain the plaintiff's objections to this which, you
11 know, besides for the fact that they're irrelevant, I think
12 they're also pretty argumentative. So that takes care of
13 that.
14 What else do we have?
15 MR. MURPHY: Thank you. Just one other issue
16 you may want to take up. 2Wire has objected to the
17 introduction of evidence of a Curriculum Vitae of our first
18 witness, the inventor Mr. Marcos Tzannes.
19 THE COURT: Right. We don't do Curriculum
20 Vitae in jury trials, so I sustain their objection.
21 MR. MURPHY: Yeah. Thank you, Your Honor.
22 THE COURT: Okay. Is there anything from the
23 defendant?
24 MR. SCHUMAN: No, Your Honor.
25 THE COURT: Okay. So --

1 deinterleave the downstream data.

2 They'll also ask you to ignore the portion of
3 the message that I just showed you clearly say
4 max_delay_octet, not min, max.

5 Instead they're going to point you to a
6 different part of the standard that's about 160 pages
7 earlier in the standard that says the amount of memory
8 actually used as the interleaver and deinterleaver memory
9 might not be all the memory that is used by a particular
10 transceiver implementation. A particular transceiver
11 implementation might use some of the memory for peripheral
12 functions. So we got a block of memory that a particular
13 implementation might decide to use some pieces of that for
14 something peripheral.

15 But Dr. Cooklev will expose 2Wire's
16 misdirection. He'll explain that the memory used for the
17 storage of the peripheral information is not interleaver and
18 deinterleaver memory. It's not the interleaver and
19 deinterleaver memory itself. It's not used to store RS
20 coded data bytes. Remember, that fundamental function of an
21 interleaver and deinterleaver is storing RS coded data
22 bytes.

23 So what are some of these peripheral functions
24 that they will want you to learn about? So the peripheral
25 functions might be a pointer system for keeping track of

1 where your RS coded data bytes are stored. That peripheral
2 information doesn't have to be stored in the same memory
3 block, but when it is, it takes up a little bit of space.
4 In any event, that's what they're talking about when they
5 say that the minimum amount of memory is what's specified in
6 the message. It's a minimum amount of memory, but it's not
7 the minimum amount of interleaver and deinterleaver memory.
8 The minimum amount of interleaver and deinterleaver memory
9 is the memory that's used to store Reed Solomon coded in the
10 device. Thus, 2Wire's argument about a maximum actually
11 being a minimum is wrong.

12 Now, I want to turn for a moment to the issue of
13 validity. So 2Wire says that even if it infringes, no
14 problem because the patents never should have been issued.
15 They want you to believe that the experts at the Patent
16 Office made a mistake each and every time they allowed the
17 three separate patents-in-suit. What you will find is the
18 following, even after 2Wire provides its evidence. Never
19 before the inventions of the patents-in-suit did anyone
20 make, use or sell a device or even describe or propose a
21 device having the invention set forth in the three patents.
22 Never before the inventions of these patents did anyone make
23 or describe a device that used a memory sharing message
24 during initialization to coordinate a memory sharing between
25 an interleaver and deinterleaver.

1 Yet, after the inventions were made by the
2 inventors, the inventions were widely adopted, including by
3 all 2Wire devices that practiced the DSL standard. 2Wire
4 argues that these inventions were obvious to someone, to an
5 ordinary person of skill in the art. What we'll find is
6 this is classic hindsight.

7 Instead of acknowledging that these
8 inventions were a great idea that they wished they had
9 thought of themselves, their story is that anyone could have
10 thought that. But they didn't. Only the inventors did.

11 After Mr. Tzannes patent provided a
12 roadmap for 2Wire; however, it's pretty easy for them to
13 find bits and pieces in the prior art and then try to
14 reassemble to look like the patented inventions. But in the
15 real world, we'll find that the prior art went exactly the
16 opposite direction and away from the patented inventions.

17 2Wire relies on an earlier patent to
18 an inventor named Mazzoni. They also rely on a proposal
19 made to the DSL Standard Committee to inclusion of a DSL
20 standard. The number of that proposal that you'll hear is
21 LB-031.

22 I will ask you to note the dates of
23 the Mazzoni reference and the LB-031 reference. And what
24 you will find is the following:

25 Mazzoni was published in January 2002.

1 It had a form of shared memory, but the relative amounts of
2 Mazzoni's shared memory were set, or they were frozen upon
3 installation. They were literally placed in by a technician
4 and frozen. There was no message sent between the CO and CPE
5 to coordinate memory sharing. Mazzoni's frozen memory could
6 not be reconfigured or reallocated by any messages. So
7 Mazzoni failed to provide the claimed invention.

8 The next item of prior art is the
9 LB-031 reference. You'll find that this proposal was made
10 in June of 2004, two-and-a-half years after Mazzoni. In
11 those two-and-a-half years, though, apparently no one other
12 than Mazzoni thought that using frozen memory was a good
13 idea for any DSL products or any DSL standards. And when
14 the LB-031 proposal was made in 2004, it went the opposite
15 direction. It proposed using messages that were entirely
16 incompatible with the use of Mazzoni.

17 Not only did LB-031 not disclose the
18 use of shared memory, the messages it uses actually prevent
19 the use of shared memory. Only separate, dedicated memories
20 could be used for the interleaver and deinterleaver of
21 LB-031. Evidently, the authors of LB-031 understood the
22 drawbacks of Mazzoni's frozen memory technique and decided
23 to use dedicated memory.

24 Worst yet, the evidence will show that
25 if one tried to use LB-031 with Mazzoni to try to

1 reconfigure Mazzoni memory, it would break Mazzoni. The
 2 messages of LB-031, because they're incompatible with shared
 3 memory, would actually cause Mazzoni to try to use far more
 4 memory than it has available. This would cause Mazzoni's
 5 modem to fail when it tried to transmit data.

6 So in sum, 2Wire will ask you to
 7 invalidate the important inventions of Mr. Tzannes and Mr.
 8 Lund in view of discarded, incompatible, and broken pieces
 9 of prior art. On behalf of TQ delta, Ms. Divine and Mr.
 10 Tzannes, I want to thank you for your time and attention.

11 THE COURT: All right. Thank you,
 12 Mr. McAndrews.

13 So members of the jury -- Mr. Schuman, how long
 14 do you expect your opening to be?

15 MR. SCHUMAN: Approximately 30 minutes, Your
 16 Honor.

17 THE COURT: Okay. So members of the jury, let's
 18 just stand up for a minute, try to make sure we're alert.

19 And Mr. Schuman, you're ready to proceed?

20 MR. SCHUMAN: Yes, Your Honor.

21 THE COURT: Or it's fine just to sit there to
 22 make sure you're ready to give -- all right.

23 Mr. Schuman, you may proceed when you're ready.

24 MR. SCHUMAN: Just trying to switch over the
 25 control.

1 THE COURT: So is this a problem that we're
 2 likely to solve in the next few minutes or --

3 THE TECHNICIAN: Yes, I'll just do this real
 4 quick, Your Honor.

5 THE COURT: All right. Success. Thanks.

6 MR. SCHUMAN: I think we're ready now, Your
 7 Honor.

8 THE COURT: All right. Thank you, everybody.
 9 Go ahead, Mr. Schuman.

10 MR. SCHUMAN: Ladies and gentlemen, my name is
 11 Brett Schuman, and together with my colleagues Doug Kline,
 12 Rachel Walsh, Jodi Barillare, we represent 2Wire in this
 13 case. And with us in the front row is Mr. Jim Shead. He's
 14 legal counsel at 2Wire.

15 Now, we're very proud to represent 2Wire in this
 16 case because, notwithstanding what you just heard from
 17 Mr. McAndrews, 2Wire's done nothing wrong here. 2Wire does
 18 not infringe TQ Delta's patents. I don't expect you to take
 19 my word for that. As the Court said, opening statements are
 20 not the evidence.

21 But once you've seen the evidence, once you've
 22 heard from the witnesses that are going to testify here this
 23 week, and you've seen the documents, we think that evidence
 24 will show you that 2Wire doesn't infringe any of the TQ
 25 Delta patents. In fact, once you've seen that evidence, I'm

1 confident that you will see that the TQ Delta patents are
 2 not even valid.

3 Now, as you've already heard a few times, this
 4 case involves DSL. And as you've also heard, DSL basically
 5 uses a portion of your copper telephone line to deliver
 6 broadband data service, for example, Internet service to
 7 your business or to your home.

8 I have a simple graphic, similar to
 9 Mr. McAndrews. DSL uses primarily three pieces of equipment
 10 to provide its service. First, on the left, the central
 11 office. Mr. McAndrews had a DSLAM in the central office.
 12 You can think of the central office such as Verizon, or
 13 Windstream. A DSL service provider has a central office.

14 Then you have the old-fashioned copper telephone
 15 line connecting the central office to this piece of
 16 equipment in your home or your business. DSL modem,
 17 sometimes it's called a DSL gateway. It's the same piece of
 18 equipment.

19 My client, 2Wire, was founded in 1998 just to
 20 make that third piece of equipment, the DSL modem. 2Wire
 21 was a real pioneer in the DSL industry. In fact, its early
 22 DSL gateways won awards at big consumer electronic shows as
 23 early as 2000.

24 2Wire delivered the first DSL modem in the
 25 spring of 2000. Mr. McAndrews showed you one of these.

1 This is what they look like. You might have one in your
 2 home. It's a black box. This is one of the 2Wire modems
 3 accused of infringement in this case.

4 Now, this is Mr. Ben Miller. Ben Miller was an
 5 early 2Wire employee. He began at 2Wire in 1999 only about
 6 six months after the company was formed.

7 He's been there almost 20 years. He's a DSL
 8 engineer. He'll testify at this trial a little bit later
 9 this week, and he'll tell you a little bit more about
 10 2Wire's DSL modems and 2Wire itself. Mr. Miller also has
 11 degrees from Carnegie Mellon and Stanford engineering
 12 degrees.

13 Now, let's talk just for a little bit about
 14 shared memory. You heard Mr. McAndrews use the term shared
 15 memory. This case is, indeed, about how to divide up the
 16 shared memory that's in the 2Wire accused modems.

17 A DSL modem is in some ways just like a computer
 18 or your phone. It performs functions. And to perform those
 19 functions, it needs to have a memory. Two of the functions
 20 that a DSL modem needs to perform, as you've heard, are
 21 called interleaving and deinterleaving.

22 Mr. McAndrews described those in some detail.
 23 But the way I like to think of them, the interleaver sort of
 24 scrambles up the data. Then it goes across the wire and the
 25 deinterleaver unscrambles that data. It's simplistic, but

1 that's one way to think about interleaving and
2 deinterleaving. You need memory to store the data while
3 you're scrambling it, and then you need memory on the other
4 end to store the data while you're unscrambling it.

5 And as Mr. McAndrews said, the data flows in
6 both directions. You can upload things from your home
7 through your modem, photos, videos. You can also download.
8 So, therefore, the modem has both interleaver memory and
9 deinterleaver memory in it.

10 You can implement that in two ways. You can
11 have these separate memories, one for the interleaver, one
12 for the deinterleaver, or you can have this shared memory.
13 It's capable of doing both.

14 Now, even though TQ Delta's patents talk about
15 shared memory for the interleaver and the deinterleaver
16 functions, the evidence will clearly show that TQ Delta did
17 not invent shared memory for interleaver and deinterleaver
18 functions. Shared memory for those functions was out there
19 in the prior art, a term you've heard used in the video and
20 already here today. It was out there in the industry before
21 TQ Delta's patents were filed.

22 Instead, TQ Delta's patents are much narrower
23 than shared memory. They all deal with a very specific way
24 to divide up that shared memory so that a portion of it is
25 used for the interleaver and a portion of it is used for the

1 deinterleaver.

2 All three of TQ Delta's patents, and you heard
3 Mr. McAndrews say, they're very similar. They all have the
4 same specification using another term from the patent video.
5 All three of TQ Delta's patents talk about dividing up that
6 shared memory in response to a very specific message.
7 You're going to hear the language a lot during this trial.
8 It's a mouthful.

9 The message has to specify a maximum number of
10 bytes of memory available to be allocated either to the
11 interleaver or the deinterleaver function.

12 A simple way to think about it, the way I think
13 about dividing up shared memory in response to a specific
14 message is a pizza. Let's say I'm coming home late from
15 work one night, and I call my wife, and I ask her to please
16 save me two slices of pizza. With any luck, she allocates
17 two slices of pizza for me. It's simplistic, but that's one
18 way to think about dividing up shared memory in response to
19 a specific message. I ask for two slices, I get two slices.

20 Now, let me cut right to the chase about what
21 you're going to hear during this trial. First, you're going
22 to hear evidence establishing that 2Wire's modems do not use
23 the specific approach for dividing up shared memory
24 described in all three of TQ Delta's patents.

25 As you heard in the patent video, the most

1 important part of a patent are the patent claims. The
2 claims are what describe the extent of TQ Delta's property
3 rights. And the TQ Delta patents that we're going to be
4 talking about this week, as I've already said once, all
5 require a very specific message, a message specifying the
6 maximum number of bytes of memory available to be allocated
7 to either the interleaver or the deinterleaver.

8 These are all three of the TQ Delta patent
9 claims side by side. And this is the element of those
10 claims that I'm focusing on at the moment. It says
11 transmitting or receiving. And we'll focus on the receiving
12 part.

13 Receiving a message during initialization
14 specifying a maximum number of bytes of memory that are
15 available to be allocated, in the case of the '048, to the
16 interleaver. In the case of the other two patents, the
17 claim talks about specifying the maximum number of bytes of
18 memory that are available to be allocated to the
19 deinterleaver.

20 To prove patent infringement in this case, TQ
21 Delta must prove that each of my client's accused DSL modems
22 receive a message during initialization specifying a maximum
23 number of bytes of memory available to be allocated. Not
24 just any message, but a message that specifies that. The
25 evidence in this case will show that these products do not

1 receive that specific message. TQ Delta also must prove
2 that each of the other elements of each of these claims are
3 met by the 2Wire modems in order to prove infringement. And
4 I won't go into the details now, but the evidence that
5 you're going to hear this week during this trial will show
6 that they also don't perform many of the other steps of each
7 of these claims.

8 Determining an amount of memory for the
9 interleaver or deinterleaver, and allocating a first number
10 of bytes. And I won't read all the language there, but you
11 will hear evidence during this trial that 2Wire's products
12 do not meet more than just one of the requirements of each
13 of these patents.

14 The next thing the evidence will show is that
15 all of the 2Wire DSL modems accused of patent infringement,
16 they all use DSL chips from a company called Broadcom
17 Corporation. Inside this black box is a little chip.
18 That's where the DSL functionality happens.

19 And those chips are all supplied to my client,
20 2Wire, by Broadcom. Broadcom is sending someone to this
21 trial to explain to you just how those chips work, and that
22 evidence will show that the chips don't do what TQ Delta's
23 patents require.

24 Third, the fourth bullet on the slide, as you
25 heard from Mr. McAndrews and as you saw in the patent video,

1 a party accused of patent infringement can challenge the
2 validity of the patents. The evidence will show that the TQ
3 Delta patents are invalid. If dividing up a shared memory
4 based on receiving a message sounds sort of obvious, that's
5 because it is. As you heard in the patent video, you can't
6 get a patent on something that is obvious.

7 As I mentioned, shared memory was out there in
8 the prior art before TQ Delta, before these patents were
9 filed, as was messaging schemes for dividing up a shared
10 memory. All those things were out there rendering these
11 patents obvious.

12 Now, you heard Mr. McAndrews talk a little bit
13 about standards. I would like to just talk briefly about
14 the standards process and what a standard is.

15 Standards are how different companies get
16 together and make sure that their equipment can communicate
17 with each other. WiFi is an example of a standard. If you
18 have an Apple phone, a Samsung phone, if you have any phone,
19 you probably have WiFi and that phone is able to communicate
20 with the equipment made by other companies because all of
21 that equipment is communicating using the WiFi standard.
22 DSL is just another example of a standard.

23 My client, 2Wire's DSL modems can communicate
24 with other companies' equipment that that central office
25 that DSLAM that Mr. McAndrews referred to because they're

1 all communicating using the deinterleaver standard. And in
2 this case, we're talking about one of the DSL standards, the
3 VDSL standard. Now as Mr. McAndrews said, the VDSL standard
4 requires that all compliant equipment send or receive this
5 O-PMS message. You heard Mr. McAndrews use that term O-PMS.
6 You're going to become very familiar with the O-PMS message
7 during the course of this trial.

8 But importantly, how the equipment uses the
9 information in that O-PMS message is not set by the
10 standard. Everyone is free to do it differently. In the
11 words of the standard itself, the actual amount of memory
12 used is implementation specific. You're going to hear
13 evidence regarding what that means as we progress through
14 the trial.

15 With that brief bit of background on the O-PMS
16 message, I would like to summarize for you what the evidence
17 will show on this question of infringement. Before I do, as
18 you heard in the video, the plaintiff, TQ Delta, bears the
19 burden of proving my client's products infringe these
20 patents. It is not our job to prove to you that they don't
21 infringe, however, I want to give you a road map here during
22 the opening statement of the reasons why we think the
23 evidence show that the those products don't infringe.

24 This is Dr. Krista Jacobsen. To look into this
25 question of patent infringement, 2Wire retained one of the

1 leading DSL experts in the field, Dr. Jacobsen.
2 Dr. Jacobsen got her Ph.D. studying under the father of DSL,
3 Dr. John Cioffi. I wouldn't expect anyone here to have
4 heard of Dr. Cioffi, but he is known as the father of DSL,
5 sort of like the Thomas Edison of DSL.

6 Now, Dr. Jacobsen studied under him, got her
7 Ph.D. under him and actually went to work with him designing
8 the first VDSL2 modems. Also, Dr. Jacobsen has published
9 not one, but two books regarding DSL technology. This is
10 one of them, it's entitled Fundamentals of DSL Technology.
11 And this book came out in 2006 long before this case began.
12 And the second book, Implementation and Applications of DSL
13 Technology, this one is from 2008.

14 Now, what you will hear from Dr. Jacobsen a
15 little bit later on during this trial is the following:
16 Dr. Jacobsen will explain the O-PMS message and she will
17 explain that the O-PMS message does not specify a maximum
18 number of bytes of memory available to be allocated
19 anywhere.

20 There is a lot of information in the O-PMS
21 message. This is the same table that was in one of
22 Mr. McAndrews's slides. There are sixteen fields of
23 information conveyed in the O-PMS message. And the evidence
24 will show, ladies and gentlemen, that none of these sixteen
25 fields specify a maximum number of bytes of memory available

1 to be allocated anywhere.

2 In this case, TQ Delta identifies these four
3 fields, the maximum delay objection at the time field. But
4 the evidence will show and Dr. Jacobsen will explain that
5 the max_delay_octet field do not specify a maximum number of
6 bytes of memory available to be allocated for either the
7 interleaver or the deinterleaver. Delay is not the same
8 thing as memory.

9 Now, Dr. Jacobsen will explain delay a lot
10 better than I possibly can, but basically the delay is the
11 amount of time it takes for the data to get into and through
12 the interleaver, that is the scrambling to the time it takes
13 for it to come out the other end of the deinterleaver, the
14 unscrambling. That's delay.

15 As Dr. Jacobsen will explain these
16 max_delay_octet fields convey to the modem on the other end
17 the minimum amount of memory that the device needs to handle
18 that amount of delay. It's a little tough the first time,
19 it was for me, at least, so I'll say it again, the maximum
20 delay translates into the minimum amount of memory required
21 to handle that delay.

22 You can think of it like an apartment building.
23 If you're going to build an apartment building that has a
24 maximum of a hundred units, you're going to want to have a
25 minimum of a hundred parking spots, one for each unit. That

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1 doesn't mean that you have to have a maximum of a hundred
2 parking spots, you can, and hopefully build more, but a
3 minimum. So the maximum number of units could convey the
4 minimum number of parking spots. And that's similar to this
5 O-PMS message. The maximum amount of delay conveys the
6 minimum amount of memory you need to handle that delay.
7 Dr. Jacobsen will explain that in greater detail. We can
8 also go back to my pizza analogy. When you call home and
9 ask to be saved two slices of pizza, I'm not saying I
10 wouldn't enjoy three or maybe four slices of pizza. Again,
11 I'm conveying the minimum, but conveying the minimum does
12 not necessarily mean the maximum.

13 In short, TQ Delta is going to try to persuade
14 you during this trial that delay really means memory, and
15 that this word max here really, that max really means
16 minimum.

17 Now, as I mentioned, the accused 2Wire products
18 all include a chip from Broadcom. Those chips use something
19 called source code. Source code is just a fancy term for
20 the written instructions that tell the chip how to operate.
21 And as you know from Mr. McAndrews, TQ Delta hired an
22 expert, Dr. Almeroth to come testify here as to how he
23 thinks that source code operates.

24 So we decided to ask someone from Broadcom to
25 come here and explain to you how those chips really operate.

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1 His name is Dr. Gong-San Yu coming from California. He is
2 an employee of Broadcom. He's the designer of some of the
3 Broadcom cell chips that are in these products, and he's the
4 head of the division responsible for all the CPE chips that
5 Broadcom sells.

6 Dr. Yu will testify that Broadcom's DSL modems
7 do not receive a message specifying a maximum number of
8 bytes of memory available to be allocated for either the
9 interleaver or the deinterleaver. He will further explain
10 how those chips actually work. The evidence you will hear
11 will show that the 2Wire products do not infringe any of the
12 three TQ Delta patent claims at issue here.

13 Last but certainly not least, I would like to
14 talk briefly about invalidity. As you heard in the patent
15 video, invalidity is a proper defense to an assertion of
16 patent infringement. Basically, the patent should not have
17 been issued in the first place. You, the jury, are an
18 important part of the checks and balances built into our
19 system. As you saw in the patent video, my client 2Wire did
20 not get to participate in the process that lead to the
21 issuance of these patents. You also heard in the video
22 about the term prior art. Prior art is another term that we
23 patent litigators use, basically it means patents and other
24 printed publications that were known, that were out there in
25 the industry before the time these patents were filed.

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1 Here the evidence will show that this prior art
2 that we're going to show you invalidates TQ Delta's patents.
3 As I mentioned earlier, the evidence will clearly show that
4 TQ Delta did not invent this concept of shared memory. One
5 of the pieces of prior art that you will see during this
6 trial is the Mazzoni prior art patent. Mr. McAndrews talked
7 about it a little bit during his opening statement. Mazzoni
8 is the name of the inventor, one of the two inventors on the
9 patent. And this patent discloses using a shared memory for
10 interleaver and deinterleaver functions in a DSL system.
11 Dr. Jacobsen will explain it in more detail. And she will
12 explain her opinion that this patent teaches the shared
13 memory that's in TQ Delta's patent claims.

14 Now, by challenging the validity of TQ Delta's
15 patents here during this trial, we're not criticizing any of
16 the patent examiners who issued these patents. In fact, as
17 you heard in the patent video, the patent examiners in this
18 case did not even hear about the Mazzoni reference. There
19 is no evidence that the patent examiners knew that this
20 reference existed, this piece of prior art when any of these
21 patents were issued.

22 The patent examiners also did not know about
23 LB-031. You heard Mr. McAndrews refer to this piece of
24 prior art as well. Dr. Jacobsen will explain to you LB-031.
25 LB-031 was a proposal submitted by another company to the

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1 same group that developed the VDSL2 standard that produces
2 this O-PMS message that TQ Delta points to in its patent
3 infringement case.

4 And just like the max delay fields from that
5 O-PMS message that you're going to hear a lot about during
6 this trial, LB-031 communicates a message specifying the
7 maximum amount of delay in octet that the other end needs to
8 be able to handle.

9 This is how the prior art looks in chronological
10 order. Here you have the prior art patent, the Mazzoni,
11 July 18th, 2000. I think Mr. McAndrews said 2001, there is
12 a number of different dates on the patent. All those dates
13 are before the date of TQ Delta's patents.

14 This is LB-031, the contribution to the
15 standards body that was producing the VDSL2 standard, this
16 piece of prior art dated June 14th, 2004. And then after
17 these two dates the patent applications that lead to TQ
18 Delta's patents were filed in October of 2004. Dr. Jacobsen
19 will testify and will explain to you her expert opinion that
20 LB-031 either alone or together with Mazzoni invalidate the
21 three TQ Delta patent claims that are at issue in this
22 trial.

23 Dr. Jacobsen will also testify regarding another
24 problem with two of TQ Delta's patents. I think
25 Mr. McAndrews referred to as in his opening statement as a

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1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE DISTRICT OF DELAWARE
3
4 TQ DELTA LLC,)
5 Plaintiff,)
6 v.) C.A. No. 13-1835-RGA
7 2WIRE, INC.,)
8 Defendant.)
9
10 J. Caleb Boggs Courthouse
11 844 North King Street
12 Wilmington, Delaware
13
14 Wednesday, May 22, 2019
15 8:30 a.m.
16 Trial Volume III
17
18 BEFORE: THE HONORABLE RICHARD G. ANDREWS, U.S.D.C.J.
19
20 APPEARANCES:
21
22 FARNAN LLP
23 BY: MICHAEL J. FARNAN, ESQUIRE
24
25 -and-
26
27 MCANDREWS HELD & MALLOY, LTD
28 BY: PETER J. MCANDREWS, ESQUIRE
29 BY: PAUL W. MCANDREWS, ESQUIRE
30 BY: JAMES MURPHY, ESQUIRE
31 BY: THOMAS WIMBISCUS, ESQUIRE
32
33 -and-
34
35 ROBINS KAPLAN LLP
36 BY: DAVID A. PRANGE, ESQUIRE
37 BY: BENJAMIN C. LINDEN, ESQUIRE
38
39 For the Plaintiff

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1 MR. MCANDREWS: Ms. Targowska is going to handle
2 the first one here.
3 THE COURT: Good morning, Ms. Targowska. Come
4 forward.
5 MS. TARGOWSKA: Permission to approach, Your
6 Honor?
7 THE COURT: Sure.
8 MS. TARGOWSKA: The issue is with the
9 demonstratives for Dr. Jacobsen's direct examination. TQ
10 Delta is objecting to slides 34 through 58 as an undisclosed
11 expert opinion, and also as prejudicial under 403.
12 The reason is that every slide within that range
13 states that the LB031 reference discloses the element of the
14 claim.
15 THE COURT: All right. So I tend to agree with
16 you. You don't have to say anything more than Dr. Yu -- oh,
17 wait. This is Ms. Jacobsen. Sorry. Oh, sorry. I
18 misunderstood what we were doing here.
19 What is the problem here?
20 MR. TARGOWSKA: Dr. Jacobsen in her slides
21 asserts that every medical element of the claim is disclosed
22 by a single reference. Anticipation has never been raised
23 in this case, Your Honor, and there is a difference between
24 saying that a person of ordinary skill would understand
25 something from a disclosure and saying that there's a

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1 APPEARANCES CONTINUED:
2 MORGAN LEWIS
3 BY: JODY C. BARILLARE, ESQUIRE
4
5 -and-
6
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8 BY: BRETT SCHUMAN, ESQUIRE
9 BY: RACHEL WALSH, ESQUIRE
10 BY: DOUGLAS KLINE, ESQUIRE
11 BY: ANDREW ONG, ESQUIRE
12 BY: CINDY CHANG, ESQUIRE
13
14 For the Defendant
15
16 *** PROCEEDINGS ***
17 DEPUTY CLERK: All rise.
18 THE COURT: All right. Good morning, everyone.
19 Please be seated.
20 All right. So one administrative matter. I
21 believe the courtroom deputy has passed out the time that's
22 been allotted or that each side has used. But if it's the
23 case that some of the depositions that were played
24 yesterday, that the time is supposed to be shared, we
25 haven't been given that information. So if there needs to
26 be a different allocation of that, you need to get us that
27 information.
28 So in terms of any issues that I can help you
29 with or at least resolve this morning?
30 MR. MCANDREWS: Yes, Your Honor. We have a few
31 issues about slides.
32 THE COURT: Okay.

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1 combination of a reference with the knowledge of a person of
2 ordinary skill in the art.
3 THE COURT: Okay. So I think I understand what
4 you're saying which is you can't say it anticipates, call
5 that obviousness, and let the jury go from there. Is that
6 what you're saying?
7 MS. TARGOWSKA: Exactly, Your Honor. It's --
8 THE COURT: Okay. I've got that point.
9 What is the response here, Mr. Ong?
10 MR. ONG: Good morning, Your Honor. So
11 Dr. Jacobsen is not going to testify as to an anticipation
12 opinion.
13 THE COURT: But she can't testify that it
14 anticipates and say I'm calling it obvious, can she?
15 MR. ONG: No, she's not going to testify to that
16 effect.
17 THE COURT: So I guess what would make this
18 easier is -- is it Ms. Targowski?
19 MS. TARGOWSKA: Targowska.
20 THE COURT: Okay. Sorry. Ms. Targowska says
21 that these slides go along with Dr. Jacobsen saying every
22 single element is disclosed in one single prior art
23 reference. Which element is not disclosed?
24 MR. ONG: Which element is not disclosed?
25 THE COURT: Right. Right. In other words, just

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1 code that Dr. Almeroth focused on for allocation and draw
 2 any conclusions about that?
 3 **A.** Well, Dr. Almeroth didn't identify any code that
 4 actually allocates the memory.
 5 **Q.** Thank you.
 6 So if we move -- remembering what your grid was,
 7 if we move to the deinterleaver function of the 6091 chip,
 8 we should have, if I did that correctly. So how about this,
 9 Dr. Walker, can you help us understand the deinterleaver
 10 function for the BCM6091 chip?
 11 **A.** Sure. The BCM6091 chip deinterleaver allocates
 12 memory in a simpler fashion than the interleaver that we
 13 just looked at.
 14 **Q.** How does it do that?
 15 **A.** What the source code tells us is that there is a
 16 total amount of memory for the -- available for the
 17 interleaver and the deinterleaver. And then what the source
 18 code says is that you subtract off the amount used by the
 19 interleaver, you subtract off a little bit more of what it
 20 calls a guard ban and it elevates everything else to the
 21 deinterleaver. Pretty straightforward.
 22 **Q.** Does max_delay_octet factor into that?
 23 **A.** Not at all.
 24 **Q.** And with respect to allocation, what did you conclude
 25 with regard to the allocation functionality for the BCM6091

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1 chip deinterleaver?
 2 **A.** So none of the source code that Dr. Almeroth has
 3 identified allocates memory.
 4 **Q.** And next, the other chip that we've heard quite a bit
 5 about is referred to as BCM63X68 chip. Focusing first on
 6 the interleaver functionality, could you explain to us how
 7 that works, Dr. Walker? And I have slide 8 if that's
 8 helpful to you.
 9 **A.** So the BCM63X68 interleaver uses a more complicated
 10 function. It basically first calculates a required amount
 11 of memory and then in the next step which is the bottom step
 12 here where it says interleaver memory equals the max of two
 13 quantities. Max means, and those two quantities are what
 14 amounts to the max delay message and this other computation
 15 which is what it calls required interleaver memory.
 16 So the way this works is that the amount of
 17 memory that this code can allocate is at least the amount
 18 specified in the -- by the max_delay_octet, or maybe more.
 19 So in that way, the max_delay_octet specifies a minimum
 20 amount of memory which is the polar opposite of a maximum
 21 amount of memory. So again, the source code does not use
 22 the max_delay parameter to determine a maximum amount of
 23 memory.
 24 **Q.** How about allocation for the interleaving function on
 25 the BCM63X68?

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1 **A.** None of the source code identified by Dr. Almeroth
 2 actually allocates the memory.
 3 **Q.** And then finally, and I don't -- we have source code
 4 on the next one. Tell me about -- tell us about your
 5 analysis for the BCM63X68, deinterleaver, how is the
 6 determination made there?
 7 **A.** Well, the determination --
 8 MR. PRANGE: Your Honor, request a side-bar.
 9 THE COURT: All right.
 10 (Side-bar discussion:)
 11 THE COURT: Go ahead.
 12 MR. PRANGE: Your Honor, you may recall there
 13 was a discussion of the slides. We had an objection to the
 14 slide that is presently on the screen. This is the original
 15 slide that looks like this. We're concerned that the
 16 question that's just been asked by Mr. Clark here --
 17 MR. KLINE: Mr. Kline.
 18 MR. PRANGE: Excuse me, Mr. Kline, that the
 19 device going into the analysis --
 20 THE COURT: The one I changed yesterday?
 21 MR. PRANGE: Correct, Your Honor.
 22 MR. KLINE: He's not going to talk about code.
 23 MR. PRANGE: I didn't think he could talk about
 24 anything. The objection we had was it was simply a summary
 25 point in his rebuttal report that simply said it wasn't

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1 there but didn't go into detail about his analysis.
 2 THE COURT: I think that's what Mr. Kline said
 3 he's going to do.
 4 MR. KLINE: I'm not going to talk about that. I
 5 can simple ask him whether the source code uses the
 6 max_delay_octet parameters to -- does it use the max_delay
 7 parameter to ensure the deinterleaver memory does not exceed
 8 a maximum number of bytes, I can ask him that question.
 9 THE COURT: Okay.
 10 MR. PRANGE: All right.
 11 (End of side-bar.)
 12 BY MR. KLINE:
 13 **Q.** Thank you, Dr. Walker. I just have one question. So
 14 the source code for the BCM6368 deinterleaver function, does
 15 it use the max_delay_octet parameter to ensure that the
 16 interleaver memory does not exceed a maximum number of
 17 bytes?
 18 **A.** No, it does not.
 19 **Q.** Thank you.
 20 And how about allocation with respect to the
 21 63X68 deinterleaver, what did you look at there and what did
 22 you conclude?
 23 **A.** That none of the source code Dr. Almeroth has
 24 identified allocates memory.
 25 **MR. KLINE:** Very good. Pass the witness, Your

1 functions.
 2 So the easiest way to understand shared memory
 3 is to contrast it with the only other way that you can do
 4 this which would be with dedicated memory. So on the left
 5 here, I've got a figure that shows a dedicated memory
 6 approach. And there you have a block of memory that is
 7 always and forever devoted to the interleaver.
 8 And you have a separate block of memory that is
 9 always and forever associated with the deinterleaver and
 10 available to the deinterleaver. If you have a shared memory
 11 approach, instead what you do, if I can make my pointer
 12 work, is there's a single block of memory. And this
 13 boundary here between the interleaver and deinterleaver can
 14 move according to the Court's construction.
 15 And I would -- I will emphasize that the Court's
 16 construction doesn't actually require the shared memory to
 17 be shared between an interleaver and a deinterleaver. I'm
 18 showing that in my diagrams simply because that's what the
 19 patent claims require. But the Court's construction is
 20 actually more general than that, just to functions.
 21 Q. Was shared memory, as the Court has defined it, known
 22 prior to the date of TQ Delta's patents?
 23 A. Absolutely, yes.
 24 Q. Can you explain?
 25 A. For example, one reference, and I will talk to you

1 more about this reference, is called the Mazzoni patent.
 2 This was a patent that was actually considering the use of
 3 shared memory in a VDSL system for interleaving and
 4 deinterleaving.
 5 This patent, and we'll talk more about it, I've
 6 pulled out Figure 6 from this patent, and I've annotated
 7 with some colors here and a bubble. But the top part in
 8 blue is the portion -- is the interleaver, and then the part
 9 in pink is the deinterleaver. And there's a shared memory
 10 block labeled MM where part of it has been allocated to this
 11 interleaver and part has been allocated to the
 12 deinterleaver.
 13 So that's one reference, and we'll talk more
 14 about this a bit more. And another couple of references are
 15 the Berkman patent and the Kang patent. The Berkman
 16 patent describes a data memory for temporary storage of the
 17 data to be interleaved and deinterleaved.
 18 And the Kang patent describes a double buffering
 19 procedure that allows the channel interleaver memory to be
 20 used also as deinterleaver memory. So those are a few
 21 references that I found that show shared memory well before
 22 the patents' priority date.
 23 Q. Let's switch gears, again, Dr. Jacobsen, back to your
 24 non-infringement opinions. Let's dig a little more into
 25 your non-infringement opinion. Did you prepare a slide

1 summarizing the bases for your disagreements with
 2 Dr. Cooklev regarding whether these 2Wire products infringe
 3 the TQ Delta patents?
 4 A. Yes, I did. And what I did was first understand what
 5 Dr. Cooklev needed to show in order to prove that the
 6 accused products infringe. And he had to prove that each of
 7 the elements of the claims are performed by or practiced by
 8 the accused products.
 9 So I started with the standard, and then I
 10 concluded that, among other things, the accused products do
 11 not receive -- and the wording here is foreign, so I will
 12 emphasize it here. The claims require a message during
 13 initialization specifying a maximum number of bytes of
 14 memory that are available to be allocated to an interleaver
 15 or deinterleaver.
 16 And you've heard about the O-PMS message, and I
 17 will talk more about it, but it does not have that. And so
 18 on that basis, the accused products do not receive that
 19 message that's required by all of the claims.
 20 I also looked at Dr. Cooklev's testing results,
 21 and I don't disagree with his results, but I disagree with
 22 how he has interpreted his result responsibility. His
 23 results merely show compliance with certain aspects of the
 24 standard. They don't show that there's infringement.
 25 Again, the standard itself doesn't require infringement.

1 Q. Let's dig a little more into the second bullet on the
 2 slide, your opinion regarding the O-PMS message.
 3 A. Right. I have prepared a slide here. Again, the
 4 accused products do not have and do not receive a message
 5 during initialization specifying a maximum number of bytes
 6 of memory that are available to be allocated to an
 7 interleaver or a deinterleaver.
 8 And just to be clear, I've merged the two kinds
 9 of messages from the two claims. One, I think it's the
 10 '048, says the interleaver. And then the other two say
 11 deinterleaver, but I've merged them in my quotation here.
 12 We just don't have that. So the '048, the '882,
 13 and the '381, they all require this message specifying a
 14 maximum number of bytes of memory are available to be
 15 allocated to a interleaver or deinterleaver. We don't have
 16 that.
 17 Q. Can you describe your opinion regarding what the
 18 O-PMS message does and doesn't have for the members of the
 19 jury, please?
 20 A. Yes. Well, it doesn't specify a maximum amount of
 21 memory. What O-PMS describes -- first of all, it has a
 22 bunch of fields. I have my -- oh, there you go.
 23 Okay. So we have a bunch of fields here in this
 24 O-PMS message. You can see there's 16 fields. None of
 25 these fields specify a maximum amount of memory available to

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1 be allocated to an interleaver or a deinterleaver at the
 2 customer's premises equipment side.
 3 So I'll back up here. So we don't have a
 4 maximum amount of memory specified. It specifies in the max
 5 delay octet values a maximum delay. And as we talked about,
 6 delay is not the same as memory.
 7 So what the delay specifies is a minimum amount
 8 of memory that needs to be allocated. So delay and memory
 9 are not the same, as I said. We all -- all of us who are
 10 developing the VDSL2 standard understood that there's a
 11 difference between delay and memory. We could have said
 12 memory. We said delay, and we did it purposely. And we did
 13 it so that people could implement the standard however they
 14 felt was best.
 15 If they wanted to use more memory, knock
 16 yourself out. If they wanted to use less memory, as long as
 17 they met the minimum requirement, people could do that. So
 18 delay and memory are not the same.
 19 And then specifying a minimum amount of memory
 20 is not the same as specifying a maximum amount of memory.
 21 So the O-PMS message does not meet the message limitation of
 22 the claims. And I also -- yeah, here's our description of
 23 O-PMS, is the max_delay_octets.
 24 Just by its name, it says maximum delay. It
 25 doesn't say maximum memory.

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1 Q. Can I pause you there for a second, Dr. Jacobsen.
 2 Dr. Cooklev yesterday said because it's specified in bytes
 3 that means that it's memory and not delay. Do you have an
 4 opinion on that subject?
 5 A. Yes. And I disagree. I disagree.
 6 Q. Explain that to the members of the jury, please.
 7 A. Well, as we talked about, just because something has
 8 units -- just because something doesn't have units that you
 9 might think about, for example, seconds for delay doesn't
 10 mean that it somehow transforms into something else.
 11 Delay can be measured in octet. It can be
 12 measured in time. One of the reasons to specify it in
 13 octets is because if we wanted to specify it in time, we
 14 would need to know the bit rate. Because the rate -- the
 15 delay is going to depend on how quickly those bits are
 16 coming into the interleaver and going over the line and
 17 leaving the deinterleaver, and so we -- so if we wanted to
 18 know time, we would also need to know the bit rate. So to
 19 remove the bit rate from the analysis we can refer to delay
 20 only in terms of octets or bytes.
 21 Q. Let's turn to slide 25, please. Dr. Jacobsen, you
 22 highlighted on your slide -- you've highlighted a sentence
 23 here. Why did you highlight that sentence?
 24 A. Well, Mr. McAndrews highlighted the sentence in his
 25 opening statement and I wanted to explain to you what that

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1 sentence actually means. So again, the sentence says that
 2 the O-PMS message specifies the portion of shared interleave
 3 memory that the VTU-R can use to deinterleave the downstream
 4 data streams.
 5 So first of all, as Dr. Cooklev I believe agrees
 6 with me, the VSDL standard does not require the shared
 7 memory. It doesn't require the use of shared memory. Why
 8 would it say something about shared memory here?
 9 The way that the initialization scheme works
 10 typically in DSL standard is that one transceiver will send
 11 a message to the transceiver on the other side of the line,
 12 it will then reply with some other kind of message, so it's
 13 a what we call half duplex kind of an operation.
 14 The O-PMS message is the first message with
 15 certain kinds of information. And it always comes from the
 16 central office side first.
 17 The central office side gets to tell the
 18 subscriber modem these are the values of I and D that I want
 19 you to use when you are communicating with me. So when
 20 you're transmitting, set up your interleaver so that you use
 21 this value of I and this value of D. Those values are sent
 22 in the O-PMS message. They're actually in this LP0 and LP1
 23 fields depending on how many latency paths we have. We can
 24 have up to two. Are however many we have, for each of them
 25 we will have a value of I and a value of D, and the central

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1 office site dictates it to the CPE, the customer premises
 2 equipment.
 3 So the subscriber side modem receives that
 4 information, and then it says okay, I need to support this I
 5 and this D. It's going to do whatever it's going to do to
 6 figure out how much memory it needs and to actually allocate
 7 that memory. But it's going to do whatever it's going to do
 8 and the central office transceiver has no idea how it's
 9 doing this.
 10 Once it's figured that out, in the case that it
 11 is actually using a shared memory, it knows what it has left
 12 over that would be available, that would be the portion of
 13 the downstream -- sorry, of the shared memory that it could
 14 use then for its own interleaving.
 15 So my opinion is that this sentence here is not
 16 tied at all to these max_octet values. It is referring
 17 instead to the transmission of the I and D values for use in
 18 the upstream direction which again, was done well before any
 19 of this. The central office side always tells the customer
 20 premises side which values of I and D to use in the upstream
 21 direction. That's been done since the beginning of DSL. So
 22 that's a very old feature.
 23 And I think this note was just intended to tell
 24 the reader that if shared memory is being used, that once
 25 the O-PMS message has been received and the values of I and

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3
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11 844 North King Street
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14 Thursday, May 23, 2019
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16 Trial Volume IV
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18 BEFORE: THE HONORABLE RICHARD G. ANDREWS, U.S.D.C.J.
19
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24
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32
33 -and-
34
35 ROBINS KAPLAN LLP
36 BY: DAVID A. PRANGE, ESQUIRE
37 BY: BENJAMIN C. LINDEN, ESQUIRE
38
39 For the Plaintiff

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1 terms of how to handle them afterwards which is simply that
2 we treat them as physical exhibits so that they go under
3 seal, and we'd take custody after the trial and after
4 they're used by the jury.
5 THE COURT: Okay.
6 MR. PRANGE: Okay.
7 THE COURT: Well, so I'm saying yes, this is all
8 things. So why don't we start with make your motion as to
9 what exhibits we're talking about.
10 MR. PRANGE: Certainly, Your Honor. TQ Delta
11 moves to admit JTX 0086, specifically Page BCRM_code_000037.
12 THE COURT: Are you going to do this 29 more
13 times?
14 MR. PRANGE: Well, I have a sheet here.
15 THE COURT: Okay.
16 MR. PRANGE: It depends if you want me to do the
17 reduced version or the long version.
18 THE COURT: So I'd like the short version, if
19 you have a sheet, which presumably 2Wire has, too.
20 MR. PRANGE: I can just do -- the other option
21 is I could just say the exhibits, and I can provide a sheet
22 up to the Court.
23 THE COURT: Well, maybe that would be a better
24 way to do it. So, and I see Mr. Ong doing something that I
25 don't usually see.

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1 APPEARANCES CONTINUED:
2 MORGAN LEWIS
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12 BY: CINDY CHANG, ESQUIRE
13
14 For the Defendant
15
16 *** PROCEEDINGS ***
17
18 THE CLERK: All rise.
19 THE COURT: All right. Good morning, everyone.
20 Please be seated. So I understand there's something I can
21 do for you.
22 MR. PRANGE: Good morning, Your Honor. David
23 Prange on behalf of TQ Delta. I have just a brief
24 housekeeping issue potentially, and it relates to probably a
25 belabored subject on the exhibits relating to the Broadcom
26 source code and other Broadcom material.
27 THE COURT: Okay.
28 MR. PRANGE: I'd simply ask -- and I'd like to
29 just -- so the record is clear, I'd like to make a motion to
30 move those into the record.
31 THE COURT: Okay.
32 MR. PRANGE: And then also I have a proposal in

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1 MR. ONG: We're just taking a picture of it.
2 THE COURT: No, that's fine. All right.
3 So why don't you just say the exhibit numbers,
4 Mr. Prange.
5 MR. PRANGE: TQ Delta moves for admission of
6 Exhibits JTX 0086, JTX 0087, JTX 0088.
7 THE COURT: You know, if you don't say the
8 zeros, they're going to be presumed.
9 MR. PRANGE: Excellent. We further move to
10 admit PTX 252, PTX 263, PTX 264, PTX 265, PTX 269, and PTX
11 372.
12 THE COURT: Okay. Mr. Ong, are you in a
13 position to comment on that, or Ms. Walsh?
14 MR. ONG: No objection, Your Honor. I think one
15 thing we would like to do just to be able to make sure that
16 we maybe didn't add any pages to those exhibits, that we
17 have the opportunity to do that.
18 THE COURT: Right. That's what Mr. Prange said,
19 and I think that you should confer and provide a written
20 list of whatever the pages are which maybe the pages that
21 are already on Mr. Prange's list.
22 Okay. So, but in any event, they'll be admitted
23 without objection. And so that was part one of your
24 three-part request.
25 Hello, Ms. Haynes.

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1 MS. HAYNES: Hello.

2 THE COURT: Why don't you hold on a minute. Why

3 don't I go to part two here.

4 MR. PRANGE: I may only have two parts.

5 THE COURT: So what's the second part?

6 MR. PRANGE: The second part is timely that we

7 make a motion to seal the exhibits just as well as JTX 0076

8 and JTX 0077.

9 THE COURT: Okay. All right.

10 I take it there's no objection from 2Wire?

11 MR. ONG: No, Your Honor.

12 THE COURT: Okay. So I'll grant that. And then

13 I thought the third part was that when we were done, the

14 custody of these would be relinquished to someone else

15 which -- right?

16 MR. PRANGE: Correct, Your Honor.

17 THE COURT: Okay. So hold that thought. So

18 Ms. Haynes, what would you like to say?

19 MS. HAYNES: Good morning, Your Honor. The only

20 issue -- I think certainly we, obviously, do not oppose that

21 they be sealed. If I understood Your Honor's ruling

22 correctly last Friday, I think they were also supposed to

23 redact any portion of the source code upon which they were

24 not relying.

25 THE COURT: I don't remember my ruling of last

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1 Friday in terms of what they're giving the jury right now

2 about various specific pages. And since I'm sealing them,

3 I'm not going to make them redact lines. That may have been

4 what I said last Friday, but I don't -- well, what do the

5 parties say?

6 MR. PRANGE: Your Honor, I'd actually like to

7 look back and look at what was in the transcript. My

8 recollection is that there was a suggestion that you do so,

9 but there was no actual requirement to do so --

10 THE COURT: Right. Well --

11 MR. PRANGE: -- because they're sealed.

12 THE COURT: All right. Do you have an opinion

13 on that?

14 MR. ONG: We do not, Your Honor.

15 THE COURT: Okay. And I take it, Ms. Haynes,

16 since we're likely going to be giving closing arguments in a

17 few minutes and sending stuff back to the jury not too long

18 thereafter, that's what you're talking about, what goes back

19 to the jury; right?

20 MS. HAYNES: That's what I understood Your

21 Honor's ruling on Friday. We just learned about the motion

22 this morning.

23 THE COURT: Right. Well, maybe it was a ruling,

24 maybe it was a suggestion. I have no independent memory of

25 it. And this would have been done in the teleconference?

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1 MS. HAYNES: Yes.

2 THE COURT: Mr. Prange, who has these exhibits

3 right now? Does plaintiff?

4 MR. PRANGE: Yes, Your Honor. Okay.

5 THE COURT: Well, so how much of an

6 administrative task is this assuming that I said, yeah,

7 redact the things because I think there is a pretty good

8 outline at least for some of these as to exactly what it was

9 that the experts were referring to?

10 MR. PRANGE: I think it's going to take some

11 time in order to go through the record and determine what

12 was referenced and compare that actually to the source code.

13 THE COURT: Is there a transcript of the

14 teleconference in the record?

15 MR. PRANGE: I don't know, Your Honor.

16 MS. HAYNES: I do have a copy. I have it with

17 me. I would need to go back and reference it.

18 THE COURT: Well, actually maybe we can resolve

19 this. Ms. Haynes, why don't you go and get the transcript.

20 Mr. McAndrews, sorry to interrupt you because

21 I'm sure you have other things on your mind right now. Are

22 you planning on using any of the source code in your closing

23 argument?

24 MR. MCANDREWS: Nothing by specific reference to

25 line numbers.

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1 THE COURT: Actually what I meant is are you

2 going to show any source code to the jury?

3 MR. MCANDREWS: No, Your Honor.

4 THE COURT: Okay. Thank you.

5 MS. HAYNES: Your Honor, I have the transcript

6 and this --

7 THE COURT: And if it's not too marked up --

8 MS. HAYNES: It's not.

9 THE COURT: -- it would be easier for me to

10 read. It's all on one page?

11 MS. HAYNES: Correct.

12 THE COURT: Can you just show it to Mr. Prange

13 what you're --

14 MR. PRANGE: Okay. Thank you, Your Honor.

15 THE COURT: All right. Having looked at it,

16 Mr. Prank, is it still your opinion it's a suggestion rather

17 than an order?

18 MR. PRANGE: Yes.

19 MS. HAYNES: Your Honor, page 23 beginning at

20 line 25 and continuing on to 24.

21 THE COURT: Page 23. Okay. So I can see how

22 the paragraph, what I said could be interpreted as a

23 suggestion, because I said I would like to encourage the

24 parties. You know, so I think it's probably something --

25 you know, it's stated in the suggestion, I think I meant it

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1 more as an order, but I think it's perfectly reasonable
 2 thing to interpret it as a suggestion, but I would like to
 3 follow that as if it were an order rather than a suggestion.
 4 All right?

5 So whether or not the source code goes back with
 6 the rest of the evidence, whether we're sending it back to
 7 the jury, I don't know, but if we could check -- try to get
 8 it redacted, the 30 pages, it won't effect closing arguments
 9 because Mr. McAndrews is not showing them any of this and
 10 I'm assuming since 2Wire barely -- I don't recall them
 11 showing any source code at any time, so I'm kind of doubtful
 12 that Mr. Schuman is planning on showing source code now. I
 13 think there is time to do it. Okay.

14 MR. PRANGE: Your Honor, so I understand based
 15 on what you have now just ordered, what's the scope of what
 16 actually needs to be redacted?

17 THE COURT: Well, basically on a particular page
 18 there were times when -- you know, I remember there was a
 19 demonstrative exhibit that was used with Dr. Almeroth where
 20 it had lines of code which I thought was basically some kind
 21 of, for lack of a better word, thing to help guide what you
 22 were going to talk about. And I'm not saying you have to go
 23 back and, you know, identify a particular place in the three
 24 days of trial transcript where a particular line was
 25 mentioned, when you had a demonstrative and you had line 252

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1 to 260, that's good enough to like leave those in even if --
 2 you know, because we got to be a little practical here.

3 But I don't think it will actually be that
 4 difficult for someone to figure out which parts were used
 5 and which parts weren't used, but I would not hold anyone in
 6 contempt if they were off by a line here or there.

7 MR. PRANGE: Thank you.

8 THE COURT: Okay. All right?

9 MR. PRANGE: So in terms of the process, is it
 10 -- I think what we'll do is we'll work -- are the redacted
 11 versions going to go back to the jury or nonredacted
 12 versions?

13 THE COURT: The redacted versions.

14 MR. PRANGE: I think we'll highlight at least in
 15 the first instance what it is and we'll share with the
 16 others and then we can have a discussion about it, I think.

17 THE COURT: Okay.

18 MR. PRANGE: Thank you, Your Honor.

19 MS. HAYNES: Thank you, Your Honor.

20 THE COURT: Thank you, everyone. Ms. Haynes, do
 21 you want your page back?

22 MS. HAYNES: Sure.

23 THE COURT: So if there is something else, I
 24 will come back and see you in ten minutes assuming the jury
 25 is all here on time. Okay? Actually, Mr. Farnan, do you

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1 have the jury instructions and voir dire or have you already
 2 --

3 MR. FARNAN: We have it. I think it's outside
 4 with the runner.

5 THE COURT: In any event, if you could give it
 6 to the clerk.

7 MR. FARNAN: Your Honor, you want the claim
 8 construction order in the back of the jury instructions?

9 THE COURT: Yes. Thanks. We'll be in recess
 10 for ten minutes.

11 (A brief recess was taken.)

12 THE COURT: All right. I did not expect to see
 13 you standing there.

14 MR. PRANGE: Neither did I, Your Honor. I had
 15 another thought with this issue of redaction. One of the
 16 issues that what was shown to the jury was not redacted and
 17 that may cause confusion to the jury. And the other issue
 18 that I have now with it as I thought through this is that it
 19 potentially creates an implication that something was wrong
 20 in the first instance when we showed it, it may reflect
 21 poorly in the minds of the jury to my client. I don't
 22 believe that they should be redacted. I'm just throwing
 23 this out, they're already going to be under seal, so that
 24 should be enough in order to protect the information.

25 THE COURT: Let me think about that for a

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1 minute.

2 All right. So Ms. Banzhoff, you're here, I
 3 guess Ms. Haynes isn't. Do you have something you would
 4 like to say about this.

5 MS. BANZHOF: I think Your Honor was clear last
 6 Friday, I don't think that the order should be reversed
 7 because it wasn't followed earlier. It doesn't make sense
 8 to Broadcom.

9 THE COURT: So I appreciate what you say, but
 10 you know, that's the difficulty of giving orders that are
 11 stated in less than order-like language. And I thought it
 12 would have been a good idea, but it was not carried through
 13 and maybe this is not the right time to carry it through.
 14 So I'm going to reverse my earlier ruling and just let you
 15 put in the pages the way they were shown to the jury because
 16 I do think there is more -- beside the administrative
 17 difficulties, there is some inference, but it's a good
 18 lesson for the future.

19 So all right. So you don't need to do that,
 20 Mr. Prange. Are we ready to go?

21 MR. PRANGE: Thank you, Your Honor. I'll sit
 22 down.

23 THE COURT: I assume Mr. Schuman is here.

24 MS. WALSH: He's on his way, Your Honor.

25 THE COURT: Okay. You're ready to go if he

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1 doesn't show?

2 MS. WALSH: Yes.

3 THE COURT: Okay. When you say he's on his way,

4 is there an ETA?

5 MS. WALSH: Maybe ten minutes.

6 THE COURT: Okay. I don't like that. You're

7 here, Ms. Walsh. Do you know why he's not here?

8 MS. WALSH: Just working on closing.

9 THE COURT: Okay. All right.

10 MS. BANZHOFF: Your Honor, may I be heard one

11 more time? I think the issue with Mr. Prange may be

12 resolved by an in limine instruction.

13 THE COURT: You know, I thought about that,

14 Ms. Banzhoff, but I think it's a balancing at this point.

15 And I think it's better not to have more limiting

16 instructions. I've already got one in here on something

17 else.

18 So not an unreasonable suggestion, but

19 I'm not going to do it.

20 MS. BANZHOFF: Thank you, Your Honor.

21 THE COURT: All right. Well, Ms. Walsh, is

22 Mr. Schuman like staying a long ways away from here?

23 MS. WALSH: No.

24 THE COURT: Okay. All right. Well, I don't

25 think I can really go forward without him, so I'm sorry,

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1 Mr. McAndrews. I don't understand this, but we'll be in

2 recess until he shows up.

3 THE CLERK: All rise.

4 (Recess was taken.)

5 THE CLERK: All rise.

6 THE COURT: All right. We're all here.

7 Mr. Schuman.

8 MR. SCHUMAN: Apologies.

9 THE COURT: All right. Well, we'll talk about

10 it later.

11 Okay. So we're ready to go. The jury is ready

12 to go. They've been ready to go for at least 12 minutes.

13 Everybody else has been ready to go, so now let's go.

14 Can we get the jury, please? And so,

15 Mr. McAndrews, just to be clear here, so you have

16 45 minutes. You can save five of those for rebuttal.

17 MR. MCANDREWS: And I'd like to do that, Your

18 Honor.

19 THE COURT: Okay.

20 MR. MCANDREWS: Will I get a signal?

21 THE COURT: Well, generally we expect your team

22 to signal you.

23 MR. MCANDREWS: Okay.

24 THE COURT: But, okay.

25 MR. MCANDREWS: Got that. Thank you, Your

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1 Honor.

2 THE COURT: Yes. Let's get the jury.

3 (Jury entering the courtroom at 9:13 a.m.)

4 THE COURT: Good morning, members of the jury.

5 Sorry for the delay. Can everyone be seated, and can we

6 hand out the jury instructions and the verdict form?

7 So members of the jury, the great bulk of the

8 jury instructions, I'm going to give you and so I have cause

9 to be handing out the written jury instructions. As I give

10 these, you can read, or you can listen, or you can do

11 whatever you want. You will have the written instructions

12 with you. But the main thing is to try to absorb as much as

13 you can.

14 So first off, you will see that in the written

15 instructions, at pages 2 to 13, there are a bunch of

16 instructions which are pretty much what I told you at the

17 beginning of the trial. They're there. They're something

18 that if you have a question about something within those

19 topics, they provide the answers, but I'm not going to read

20 them to you again. They're there for you to refer to. And

21 should the attorneys want to rely on them in their closing

22 arguments, they're perfectly free to do that.

23 So I'm going to start on page 14, which is one

24 thing I didn't tell you in advance because it involved

25 things that happened at trial. Over this week of testimony,

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1 you have heard that one witness or another was not allowed

2 to discuss matters of another witness and that certain

3 witnesses had limited access to Broadcom's source code. You

4 are not to draw any inferences, either positive or negative,

5 from those statements.

6 So I'm now going to summarize the issues that

7 you must decide and from which I will provide instructions

8 to guide your deliberations. You must decide the following

9 main issues:

10 Whether TQ Delta has proven by a preponderance

11 of the evidence that 2Wire infringed claim 5 of the '381

12 patent, claim 13 of the '882 patent, and claim 1 of the '048

13 patent.

14 And I may summarize the three claims at issue as

15 the claims at issue as we go on.

16 So the second issue is whether 2Wire has proven

17 by clear and convincing evidence that the claims at issue

18 are invalid.

19 And the third issue is whether 2Wire has proven

20 by clear and convincing evidence that the certificates of

21 correction connecting claim 5 of the '381 patent and claim

22 13 of the '882 patent are invalid.

23 Before you decide whether 2Wire has infringed

24 any of the asserted claims of the asserted patents or

25 whether any of the asserted claims are invalid, you will

1 have to understand the claims. The patent claims are the
 2 numbered sentences at the end of the patents. The patent
 3 claims involved here are the three that I just mentioned,
 4 claim 5 of the '381 patent, claim 13 of the '882 patent and
 5 claim 1 of the '048 patent.

6 The claims are intended to define in words the
 7 boundaries of the inventor's rights. Only the claims of the
 8 patent can be infringed. Neither the written description
 9 nor the drawings of the patent can be infringed. You must
 10 use the same claim meanings on both your decision on
 11 infringement and your decision on invalidity.

12 It is my job as a judge to provide to you the
 13 meaning of any claim language that must be interpreted. You
 14 must accept the meanings that I give you and use them when
 15 you decide whether any claim has been infringed and whether
 16 any claim is invalid. The three terms that I have
 17 construed, and their meanings, are provided to you in a
 18 separate order, the last page of these instructions. And
 19 you will recall the parties have often put them up on the
 20 screen consistent with what's in that order.

21 So in terms of infringement, patent law gives
 22 the owner of a valid patent the right to exclude others from
 23 making, offering to sell, or selling the claimed invention
 24 within the United States during the term of the patent. Any
 25 person or business entity that is engaged in any of those

1 acts without the patent owner's permission infringes the
 2 patent. Here, TQ Delta alleges that 2Wire's products, which
 3 have model numbers 5031NV, 5168NV, 5168N, 5268AC, i3812V,
 4 and 3801HGV, which if I refer to them again I will just call
 5 them the accused products, infringe the three claims at
 6 issue.

7 A party can infringe a patent without knowing of
 8 the patent or without knowing that what the party is doing
 9 is patent infringement.

10 To determine infringement, you must compare each
 11 of the accused products with each of the asserted claims
 12 using my instructions as to the meaning of the terms used in
 13 these three claims.

14 A patent claim is infringed only if 2Wire
 15 products include each and every element recited in that
 16 patent claim. If 2Wire's product does not contain one or
 17 more elements recited in a claim, that 2Wire product does
 18 not infringe that claim.

19 Each accused product should be compared to the
 20 invention described in each of the three claims at issue.
 21 The same element of the accused product may satisfy more
 22 than one element of a patent claim. What the asserted
 23 claims recite is the capability to perform a function. An
 24 accused device may be found to infringe if it is reasonably
 25 capable of satisfying the claim limitations, even though it

1 may also be capable of non-infringing modes of operation.
 2 Actually showing the performance of the function is
 3 unnecessary.

4 So in this case, the only items of or
 5 only the following items are prior art: ITU-T, SG/15/Q4
 6 Contribution LB-031 entitled VDSL2 - Constraining the
 7 Interleaver Complexity which I'm sure the parties will refer
 8 to as LB-031. And U.S. patent number 7,269,208 which will
 9 probably be referred to as Mazzoni.

10 Regardless of whether a particular
 11 prior art reference was considered by the patent examiners
 12 during the prosecution of the applications, which matured
 13 into the asserted patent claims, 2Wire must prove that it is
 14 highly probable to each challenged claim is invalid. This
 15 burden of proof on 2Wire never changes regardless of whether
 16 the patent examiner considered the reference.

17 In this case, the date of the
 18 invention for the asserted claims in the patents is
 19 October 12th, 2004.

20 The question of invalidity of a patent
 21 claim is determined from the perspective of a person of
 22 ordinary skill in the art in the field of the claimed
 23 invention as of the time of the invention. Thus, prior art
 24 must be evaluated from the perspective of one of ordinary
 25 skill in the field of the invention as of October 12, 2004.

1 2Wire contends that the three asserted
 2 claims are invalid because each claimed invention is
 3 obvious.

4 A claimed invention is invalid as
 5 obvious if it would have been obvious to a person of
 6 ordinary skill in the art of the claimed invention as of
 7 October 12th, 2004. Obviousness may be shown by considering
 8 one or more than one item of prior art.

9 In deciding obviousness, you must
 10 avoid using hindsight. That is, you should not consider
 11 what is known today or what was learned from the teachings
 12 of the patent. You should not use the patent as a roadmap
 13 for selecting and combining items of prior art. You must
 14 put yourself in the place of a person of ordinary skill in
 15 the art as of October 12th, 2004.

16 The following factors must be
 17 evaluated to determine whether 2Wire has established that
 18 the claimed invention is obvious.

19 1. The scope and content of the prior
 20 art relied upon by 2Wire.

21 2. The differences, if any, between
 22 each claimed invention of the asserted patents that 2Wire
 23 contends is obvious and the prior art.

24 And three the level of ordinary skill
 25 in the art as of October 12th, 2004.

1 Each of these factors must be
2 evaluated, although they may be analyzed in any order. And
3 you must perform a separate analysis for each of the claims.
4 2Wire must prove by clear and
5 convincing evidence that each claimed invention of the three
6 asserted claims would have been obvious as of October 12th,
7 2004.

8 So 2Wire asserts the following
9 combinations of prior art render the asserted claims invalid
10 as obvious LB-031 in combination with the knowledge of a
11 person of ordinary skill in the art and LB-031 in
12 combination with Mazzoni.

13 You should analyze whether there are
14 any relevant differences between the prior art and the
15 claimed invention from the view of a person of ordinary
16 skill in the art as of October 12th, 2004. Your analysis
17 must determine the impact, if any, of such differences on
18 the obviousness or non-obviousness of the claimed invention
19 as a whole and not merely some portion of it.

20 In analyzing the relevance of the
21 differences between the claimed invention and the prior art,
22 you do not need to look for precise teaching of the prior
23 art directed to the subject matter of the claimed invention.
24 You may consider the inferences in creative steps that a
25 person of ordinary skill in the art would have employed in

1 reviewing the prior art at the time of the invention. For
2 example, if the claimed invention combined elements known in
3 the prior art and the combination yielded results that were
4 predictable to a person of ordinary skill in the art at the
5 time of the invention, then this evidence would make it more
6 likely than that the claim was obvious. On the other hand,
7 if the combination of known elements yielded unexpected or
8 unpredictable results, or if the prior art teaches away from
9 combining the known elements, then this evidence would make
10 it more likely that the claim that successfully combined
11 those elements was not obvious.

12 Importantly, a claim is not proven
13 obvious merely by demonstrating that each of the elements
14 was independently known in the prior art. Most, if not all,
15 inventions rely on building blocks long-known, and claimed
16 discoveries almost of necessity will likely be combinations
17 of what is already known. Therefore, you should consider
18 whether a reason existed at the time of the invention that
19 would have prompted a person of ordinary skill in the art in
20 the relevant field to combine the teachings in a way the
21 claimed invention does. The reason could come from the
22 prior art, the background knowledge of one of ordinary skill
23 in the art, the nature of any problem or need to be
24 addressed, market demand, or common sense. If you find that
25 a reason existed at the time of the invention to combine the

1 elements of the prior art to arrive at the claimed
2 invention, and there would have been a reasonable
3 expectation of success for doing so, this evidence would
4 make it more likely that the claimed invention was obvious.
5 Similarly, you may consider the possibility that a reference
6 teaches away from the claimed invention. A reference
7 teaches away from the invention when it would have
8 discouraged a person of ordinary skill in the art as of
9 October 12, 2004 from practicing the claimed invention, or
10 when such a person would be led in a different direction
11 than practicing the claimed invention.

12 To determine the obviousness of each
13 invention of the three asserted claims, you must determine
14 the level of ordinary skill in the field of the invention as
15 of October 12th, 2004. The person of ordinary skill is
16 presumed to know all the prior art in this case. The person
17 of ordinary skill is also a person of ordinary creativity
18 that can use common sense to solve problems.

19 When determining the level of ordinary
20 skill in the art, you should consider all the evidence
21 submitted by the parties, including evidence of:

- 22 1. The level of education and
- 23 experience of persons actively working field as of
- 24 October 12, 2004, including the inventors;
- 25 2. The types of problems encountered

1 in the art as of October 12, 2004; and
2 3. The sophistication of the
3 technology in the art as of October 12, 2004, including the
4 rapidity with which inventions were made in the art as of
5 October 12, 2004.

6 TQ Delta alleges that claim 5 of the
7 '381 patent and Claim 13 of the '882 patent issued from the
8 Patent Office containing errors. Requesting a certificate
9 of correction is one way to correct certain kinds of errors
10 in patents. Once properly corrected by a certificate of
11 correction, a patent has the same effect and operation in
12 law as if it were originally issued in the corrected form.

13 TQ Delta requested and obtained certificates of
14 correction for claim 5 of the '381 patent and claim 13 of
15 the '882 patent. 2Wire challenges the validity of those
16 certificates of correction and has the burden of proving
17 invalidity by clear and convincing evidence.

18 When the patent applicant is the one
19 who made the error, it can use a certificate of correction
20 only to correct errors of a clerical or typographical
21 nature. An error is clerical or typographical if one of
22 skill in the art can tell just from looking at the patent
23 and the prosecution history that there was an error and how
24 the error should be corrected. If an error was not clerical
25 or typographical in nature, the certificate of correction

1 correcting that error is invalid.

2 So the only other instructions I have
3 to do relate to deliberation, and I will give them to you
4 after the arguments of the attorneys. So at this point,
5 let's turn to the arguments of the attorneys.

6 Basically for your reference, each
7 side is limited to 45 minutes. And the way it works is
8 plaintiff goes first. They can keep a small amount of time
9 as a reserve. Then the defendant goes. When the defendant
10 is finished, that reserve the plaintiff can use, but that
11 comes out of the 45 minutes total.

12 Okay? Mr. McAndrews.

13 MR. MCANDREWS: Thank you, Your Honor. Good
14 morning, ladies and gentlemen of the jury. My name is Peter
15 McAndrews again, and TQ Delta and I want to thank you for
16 your very important jury service. We know it's been a
17 disruption to your lives. For sure it has been. But your
18 sacrifice is incredibly important. You're the backbone of
19 the U.S. judicial system. So again, thank you.

20 Now, we've done some heavy lifting this week. I
21 feel like all of you can probably pass a graduate level
22 course on DSL. But that's not why you're here. You're not
23 here for your technical expertise. You're here for your
24 collective wisdom, for your common sense, for your impartial
25 view of the evidence and testimony. And to judge the

1 credibility and motivation of the witnesses you have heard.

2 That's why the United States has a jury system.
3 It's the best in the world. That's why we have trial by
4 jury.

5 Some of the words you have heard, DSL, bits and
6 bytes, DSLAMs and CPE, interleavers and deinterleavers,
7 Reed-Solomon codewords, O-PMS message, you heard a lot of
8 those, but I think the evidence, the testimony, the
9 presentation has distilled this back not to how interleavers
10 and deinterleavers necessarily work, not whether you're
11 talking about the CPE or the CO, hopefully now you have got
12 the directions in mind, although it is easy for lawyers to
13 mess it up from time to time.

14 It comes down to two primary issues. The two
15 primary issues are whether the accused products include
16 shared memory, and I think that that's a fairly
17 straightforward question that's answered in TQ Delta's
18 favor, and whether or not the message specifies memory
19 rather than delay, and specifies a maximum rather than a
20 minimum. Those are really the key things that I think the
21 jury needs to resolve and hopefully you have the tools to
22 resolve those.

23 Now, I want to remind you when you review the
24 evidence as you just heard that there is two main issues
25 here. There is infringement and there is invalidity. On

1 infringement, TQ Delta bore the burden. But our burden of
2 proving infringement is just by a preponderance. On a
3 scale, just a feather, just enough to move it in our favor.
4 If you believe that it's slightly more likely than not that
5 we have proven infringement, then you should find in favor
6 of TQ Delta on the issue of infringement.

7 On the invalidity side and invalidity will apply
8 both to invalidity in view of the prior art, whether the
9 claims are obvious, it also applies to whether 2Wire has
10 proven that the certificate of correction was issued
11 improperly. 2Wire bears a very heavy burden there. It's a
12 clear and convincing burden, so they would have to tip the
13 scales much further down on their side to prove invalidity,
14 and we don't believe they have done that.

15 What I'm going to do, I'm not going to take you
16 through all the evidence, I'm not going to argue the entire
17 case to you here. What I'm going to do is remind you some
18 of the things that you heard and bring back some of what you
19 have seen over the last few days and you can hopefully
20 understand and put yourself back to where you heard
21 Dr. Cooklev testify, Dr. Almeroth testify, the inventor,
22 Mark Tzannes testify. If you could put yourself back there
23 when you listen to those words, what you felt based on your
24 common sense whether you were hearing the truth.

25 So Mark Tzannes, he's an innovator. He devoted

1 his life's work, thirty years to the DSL industry. He's got
2 more than a hundred patents. And he contributed to the
3 development of these very important standards.

4 2Wire on the other hand, you didn't hear that
5 they were contributors. Instead, they're implementers. So
6 they took the benefits that Mr. Tzannes provided by working
7 very hard on the standards and they benefitted from that.
8 They benefitted from that, but they don't want to pay for
9 it, they don't want to acknowledge that they're using it.
10 They don't want to do what's right. They should have taken
11 a license when they were approached six years ago, but they
12 didn't want to do that.

13 Something else. They're trying to diminish the
14 value of the invention based on combinations, bits and
15 pieces of the prior art. But we haven't heard yet anywhere,
16 and I think it was acknowledged yesterday in the testimony,
17 that never before is the complete invention of the claims,
18 was it placed in a patent, was it placed in a proposal or
19 placed in a device. By the way, there was some testimony
20 during I think it was what's called recross of Dr. Cooklev
21 where there was a patent put up and the attorney for 2Wire
22 highlighted the word device. That doesn't make it a device.
23 A device is something that's actually been built.

24 Of course patents can describe devices, they
25 would describe what they hope would be built, but that's not

1 an actual device. We heard no testimony that this invention
 2 was ever placed into a device before the invention by
 3 Mr. Tzannes.

4 Now, one of the benefits of the invention, you
 5 heard a little bit about this. So it provides flexible
 6 impulse noise protection. So as there are changing
 7 conditions on the network, there are changing needs for data
 8 rates, it makes a flexible solution by exchanging memory
 9 securing message. You can be devote more memory to the
 10 upstream path, and you can devote more memory to the
 11 downstream path. It does that by sharing the same memory.
 12 You heard the complexity of sharing memories and how prior
 13 art can be broken if the memory, if the messaging isn't done
 14 the right way.

15 And ultimately what that does for implementers
 16 is it saves them on cost. And that's a very important
 17 component when the implementers go to purchase chips and
 18 when you reduce the cost of memory, it reduces the size of a
 19 chip, reduces power consumption, reduces all sorts of things
 20 that lower their costs.

21 And prior art, it didn't have shared memory, it
 22 had dedicated memory. You heard the testimony that to meet
 23 the requirements of the standard, provide adequate service,
 24 you would need approximately 130,000 bytes of this very fast
 25 computer memory with dedicated memory. Well, when you can

1 share memory, you can provide all the flexible but with half
 2 the memory, about 65,000 bytes of memory.

3 One running theme here is the DSL standard.
 4 2Wire undoubtedly admits that they practice the standard.
 5 They put a witness on the stand that I think he attempted to
 6 suggest that maybe they don't know very well, the equipment
 7 is a little bit of a black box to them, but at the end of
 8 the day, they tell the public, they tell their customers,
 9 AT&T, they confirm in a very formal document that their
 10 products comply with the standards.

11 One of those formal documents that we saw was
 12 referenced as the Uber Matrix, kind of an odd term. It has
 13 nothing to do with how you guys may have gotten over here.
 14 Sorry I jumped ahead.

15 Uber Matrix is a formal document where they tell
 16 their largest customer that they comply. The customer says
 17 the device must be compliant with the VDSL2 and they confirm
 18 that compliance. And they confirm it for each software
 19 release, each release of the product. We saw evidence about
 20 that. And I don't think there is any dispute that they're
 21 practicing the standard.

22 Remember, though, and we heard testimony about
 23 this, that the claims, the totality of the claims that we
 24 demonstrated were being used by the accused products, they
 25 also require shared memory. And you heard testimony that

1 the shared memory is actually not required by the standard,
 2 and that's true. It is recommended by the standard, the
 3 standard allows for it, and, therefore, the standard
 4 provides a memory sharing scheme that will allow you to
 5 share your memory if you want.

6 Of course, the evidence also showed that the
 7 2Wire products are actually sharing the memory. They took
 8 the benefit, they didn't have to, they could have made
 9 products that didn't comply -- I'm sorry, they could have
 10 made products that did not use shared memory, but they did,
 11 they wanted the benefit provided, the cost savings to reduce
 12 the amount of memory.

13 Now, TQ Delta carried its burden. TQ Delta
 14 carried its burden by showing you a number of things. I'm
 15 going to step you through them. This is our burden on
 16 infringement. We believe that we tip the scales far more in
 17 our favor than just the feather that was required.

18 So on the issue of shared memory, we looked at
 19 the standard that recommends it. We looked at some Broadcom
 20 documents, some testing information, and some source code
 21 analysis. I'm going to take you through some of those, just
 22 remind you what you may have heard over the last couple of
 23 days, or hopefully what you did hear.

24 The standard, it says, this is referencing the
 25 O-PMS message by the way, but it specifies a portion of the

1 shared interleaver memory. So the message is in particular
 2 referencing shared memory. We agree this is not a
 3 requirement of the standard, but it's a recommendation and
 4 it's telling you the messages are there to allow you to do
 5 that.

6 Dr. Cooklev also explained that the standard
 7 recommends using shared memory.

8 Broadcom data sheets that we saw, they explain
 9 that there is a triangular FIFO based, that's a fancy word
 10 for shared memory. Dr. Cooklev confirmed that that's, in
 11 fact, shared memory.

12 Dr. Cooklev also explained how his testing
 13 showed that given the different configurations he tested
 14 that in some configurations, certain memory was used for the
 15 interleaver and in another configuration certain portions of
 16 the same memory were used for the deinterleaver. We also
 17 heard from Dr. Almeroth, and he showed how the source code
 18 proves that the assignment of the memory in interleaver
 19 memory and deinterleaver memory come from the same block of
 20 memory.

21 On the other hand, we didn't have any evidence,
 22 no opinions from any of the experts that showed up here for
 23 2Wire. Dr. Jacobsen had no opinion about whether the
 24 accused products include shared memory. She agreed, I don't
 25 have an opinion.

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1 Dr. Yu hadn't even looked at the claims so he
2 certainly didn't have any opinion on whether the accused
3 products used shared memory. He didn't deny that they did.

4 And Dr. Walker didn't provide any testimony at
5 all, but I asked Dr. Jacobsen who had relied on Dr. Walker
6 for certain things and she agreed he had no opinion on
7 whether there was shared memory. In fact, all the way back
8 at the start of the case when 2Wire's counsel spoke to you
9 in the opening statement, he agreed, he said this case is
10 indeed about how to divide up the shared memory that's in
11 the accused product. So I really think that that issue is
12 put to rest.

13 Now, maximum is not a minimum. Your common
14 sense tells you that's likely true. But the technology is a
15 bit complex, so we took you through the evidence and showed
16 you why the amount of memory being specified in the message
17 was actually a maximum and couldn't be a minimum. If it was
18 a minimum, the systems would be broken. Dr. Cooklev
19 explained to you that the memory being specified as (I minus
20 1)(D minus 1) over 2, that was the maximum amount of
21 interleaver memory that could be used because the
22 interleaver and deinterleaver have to be mirror images, they
23 have to tell each other so they can coordinate that to
24 decode the data that can be interleaved on the way out and
25 deinterleaved on the way in, that's the only way it could

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1 work. It's specifying memory and specifying a maximum
2 amount. Dr. Cooklev said if I got 30 and you got 40, that's
3 not going to work, if I say 30 and you treat that as a
4 minimum and you select 40, it's broken. You select that
5 as -- if you read that and understand it as a minimum, it's
6 going to work. So it's got to be a maximum not a minimum.

7 We also had this testimony about peripheral
8 memory. I think 2Wire and some of their witnesses were
9 suggesting that this additional memory, this implementation
10 specific memory, they point to this portion of the standard
11 that talks about this is the minimum amount of memory
12 because of an implementation detail here. But that part of
13 the standard doesn't say interleaver and deinterleaver
14 memory. It says the total memory.

15 So what is the total memory? The total memory
16 is the interleaver and deinterleaver memory. Remember, it's
17 the memory that you need to store the Reed-Solomon coded
18 data bytes that you're spreading out. And the additional
19 memory is peripheral memory.

20 And we have a number of sources that confirm
21 that it's peripheral memory. We have a number of sources
22 that refuse to say and explain to you why they believe that
23 was interleaver memory.

24 So we've got a little chart here. We've got
25 Dr. Jacobsen's book that explains that additional peripheral

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1 memory is pointers and not the interleaver deinterleaver
2 memory itself. I'll show you that.

3 Dr. Jacobsen called the additional memory
4 headroom. Kind of a vague term, but she certainly didn't
5 say that it was interleaver deinterleaver memory.

6 Dr. Yu, he used a word very similar to
7 Dr. Jacobsen. He said overhead. Well, overhead, nobody
8 told you that that's interleaver and deinterleaver memory.
9 It's not. Again, it's these pointers, these additional
10 things that help maybe control what's going on in the
11 interleaver deinterleaver memory, but it's not interleaver
12 deinterleaver memory.

13 And they're talking about implementation details
14 where they want to say it's a minimum. Yeah, you need some
15 of this other stuff. It doesn't even have to be stored, as
16 we heard from Dr. Jacobsen, in the same memory, but there's
17 a little bit more.

18 But the amount of memory, (I minus 1) (D minus
19 1), which is actually doing the interleaving and
20 deinterleaving, that's what's specified in the message.
21 That's what the maximum number of -- that can't be any more
22 than specified in the message.

23 And Dr. Walker referenced this 3MK plus 8, but I
24 think as you heard from Dr. Cooklev that's simply this
25 overhead. That's in additional memory, pointers and things.

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1 So here's the book. The pointers are the A, and
2 the L, and the U. And I apologize, I'm stepping through
3 this a little quickly, but I think you heard this. The A,
4 and the L, and the U over there, that's effectively a memory
5 pointer. And what it says is typically that's much smaller
6 than the interleaver or deinterleaver memory itself.

7 And this came out of the book that Dr. Jacobsen
8 edited. She agreed that the book she edited distinguishes
9 the interleaver deinterleaver memory itself from the memory.
10 She agreed with that characterization of what the chapter in
11 her book said.

12 Dr. Yu explained -- he explained a couple things
13 here, but what he explained down here at the bottom when he
14 was talking about the memory is here's his term overhead.
15 So he talked about the (I minus one) (D minus one) over two.
16 Then he said that was a minimum. But the only reason he
17 said it was a minimum is because there was some additional
18 overhead that was required. Again, that's not the
19 interleaver deinterleaver memory.

20 So now max_delay_octets, we heard some
21 suggestion that that's delay. It's not memory. It's not
22 memory specified in bytes. It's some sort of maybe time
23 delay or has nothing to do with memory perhaps. And we saw
24 why that's not true.

25 First of all, the O-PMS message itself says that

1 the section of the standard says that it's specifying a
 2 portion of shared interleaver memory, the field of the
 3 message. And we pointed to field eight for some of these
 4 things. That's the downstream deinterleaver. And it
 5 says -- it specifies the maximum value of delay octet, but
 6 it's specified in bytes, and that's bytes of memory.
 7 And that's exactly what this is referencing.
 8 This is referencing, in more general terms, field eight. So
 9 some of the fields of the message.
 10 Dr. Cooklev, he also explained that
 11 max_delay_octet specifies a maximum amount of memory. I
 12 don't think they broke him down on that. I think he stuck
 13 to that. You didn't hear anything convincing from anyone on
 14 2Wire's side.
 15 And Dr. Almeroth also showed you -- he concluded
 16 and he reviewed the code. He understands how the code is
 17 processing the message and how it's interpreting. And he
 18 testified that the message says delay, and that means memory
 19 specified in bytes.
 20 Again, Dr. Yu, he testified that the O-PMS
 21 message, it's memory. Right. It's memory. He's not
 22 telling you that that's some sort of delay untied to memory.
 23 Dr. Yu says the O-PMS message max delay, that's a term
 24 that's in the O-PMS message, and he's telling you that it's
 25 memory.

1 So Dr. Almeroth's source code analysis, and I
 2 think it was the only rigorous analysis of the source code.
 3 And remember, Dr. Walker, he called it the gold standard.
 4 He said the source code is the gold standard. He said
 5 that's really where you have to go to find out how these
 6 products really work.
 7 But nobody did a rigorous analysis. You didn't
 8 hear that out of Dr. Walker. He didn't show you new
 9 detailed lines of code. He didn't step you down through the
 10 functions. And you certainly didn't hear that of Dr. Yu.
 11 Dr. Yu didn't have any source code to show you.
 12 He didn't explain any files. He didn't show you that.
 13 And the analysis of Dr. Almeroth was rigorous.
 14 He started with the claim language.
 15 Dr. Yu didn't start with any claim language. He
 16 didn't even -- he had never seen the patent. He barely knew
 17 how to read a patent. He didn't know what a patent was.
 18 Even his own patents, he's never read.
 19 So Dr. Almeroth, starting with the claim
 20 language, he looked at all -- how that mapped to the
 21 standard to understand the functionality. He started at the
 22 top. He worked his way down through every file and
 23 function. He gave you specific line numbers. He showed
 24 those to you. He explained to you how each one of those
 25 supported elements of the claim.

1 The analysis was very rigorous. He showed you
 2 exactly what he did. He gave you the function names, the
 3 file names. He showed how one called the next as you
 4 cascade down into the depths of the code.
 5 You know, he started with 500,000 pages of code.
 6 He worked his way through all of that. He worked it down
 7 until he found you the specific lines and functions and
 8 showed you how it worked, and then he mapped that all to the
 9 various claim elements. He reached conclusions based on
 10 that code and showed you how each element of every asserted
 11 claim was met by his code analysis.
 12 Now, Dr. Yu came in to help one of their larger
 13 customers, 2Wire. Broadcom flew him in to provide
 14 testimony. I think you heard a number of times from his --
 15 2Wire's counsel that Dr. Yu is really going to provide an
 16 answer. We were really going to really hear why our
 17 testimony was wrong.
 18 But I don't think he did that. In fact, I think
 19 Dr. Yu largely confirmed, based on the testimony I showed
 20 you, that TQ Delta is correct, that it's specifying memory.
 21 It's specifying maximum amounts of memory. I don't think
 22 what we gained from Dr. Yu yesterday was at all a rebuttal,
 23 certainly not a convincing rebuttal of anything that we put
 24 on.
 25 Now, validity. We have Mazzoni and LB-031.

1 Start with Mazzoni. The Mazzoni memory is frozen.
 2 Dr. Jacobsen agreed with that. It's very limiting if the
 3 memory is frozen.
 4 She agreed that it didn't disclose any sort of
 5 messaging, doesn't even disclose any initialization at all.
 6 It's done at installation. Someone shows up, plugs it in,
 7 configures it for you, and they're gone, and it's frozen.
 8 Now, LB-031. LB-031, she agrees, it doesn't
 9 disclose shared memory. I think they had a couple slides
 10 that suggest that maybe it did, but ultimately she admitted
 11 that this doesn't disclose shared memory. In fact, it
 12 doesn't have any explicit discussion of any memory
 13 configuration.
 14 And our witness, Dr. Cooklev -- and granted we
 15 were a little rushed there at the send, but he explained to
 16 you why LB-031 simply can't be used with memory sharing. He
 17 explained that you exchange a maximum on each side of these
 18 two, but these two sides are not coordinated. They each
 19 exchange their maximum, and then that's the end of the
 20 conversation. There is no further conversation between the
 21 two devices. There's nothing further disclosed in LB-031
 22 about how you might coordinate memory.
 23 And so what happens is you wind up with
 24 unused -- if this guy says, I've got 40,000 bytes, and this
 25 guy says, I've got 30,000 bytes on this path, there's no way

1 for this memory to end up down here because the conversation
2 is over at that point.

3 There's simply no way to share memory using
4 LB-031. And in fact, we showed you with a specific
5 reference. Well, so Dr. Cooklev he explained it, and again
6 it was a little bit rushed, but hopefully you gained from
7 that the reasons why it's broken, the reason why it won't
8 share memory.

9 And then on to the other issue. So we actually
10 showed you -- one of the combinations they tried to put
11 together was LB-031 with Mazzoni. We showed why LB-031
12 actually couldn't be used at all with Mazzoni. And the
13 reason for that is, because as Dr. Cooklev explained,
14 Mazzoni only has, based on its various -- you know, its 12
15 service profiles, it only has 27,000 bytes of memory. But
16 if you use Mazzoni's messaging protocol, it wants to tell
17 each other a total of 36,000 bytes of memory.

18 So that's going to break it. There's not going
19 to be enough to work on either direction, and it's broken.

20 So what was the reason? So the reason that
21 Dr. Jacobsen said that, no, that could be fixed. One
22 skilled in the art would know how to fix that. And her only
23 solution for that was to add more memory. But remember,
24 she's saying that you would be motivated to combine them.

25 And what reason did she give? She said that you

1 would be motivated to combine because both references --
2 both references are concerned with limiting the amount of
3 memory. So if you put them together, you have to increase
4 that amount of memory again and make them work together.
5 You've defeated the whole reason you put them together in
6 the first place.

7 And now you don't even need shared memory. You
8 have 36,000 bytes of memory. Now, you can do what LB-031
9 did. You never have to cross over into the other side. You
10 can divide those memories back up and never use one for the
11 other side. It completely eliminates the benefit of the
12 invention, and it eliminates the need for the invention. So
13 there's no motivation to combine LB-031 in any way where
14 you're going to arrive at the invention.

15 Now, so back to the burden of proof. We don't
16 think that there is anything that they've shown, anything
17 that 2Wire has shown that establishes their burden. In
18 fact, we think they're way up here. They've got LB-031 that
19 is totally incompatible with shared memory. And when you
20 put them together, you've got a broken device.

21 Now, the certificate of correction, let me go
22 through that real quick. You heard testimony that it was a
23 cut and paste error. We believe that that's actually the
24 case, and I'll show you in a second why we absolutely
25 believe that it was a simple cut and paste that then got

1 corrected.

2 And the patent -- and remember, the issue was
3 there was a transposition of transmission and reception.
4 Simply, a transmission of -- transposition of transmission
5 and reception. Transmitters transmit. Receivers receive.
6 A deinterleaver is part of the receiver that receives the
7 deinterleave. Transmitter, part of the interleaver that
8 interleaves to transmit.

9 And that's where the mistakes were made. That's
10 how it was fixed.

11 We had an additional error in the claim, shred.
12 That was fixed. Certainly patent attorneys can make
13 mistakes undoubtedly.

14 Now, here's why we know it's a cut and paste
15 error. Shred. So shred is not the sort of thing that you
16 would type out multiple times and make that same mistake
17 over, and over, and over again. If your entire patent was
18 about shared memory, you're not going to make that mistake
19 that many times. So obviously -- and this was shown to you
20 yesterday by 2Wire's attorneys. They showed you, and I
21 think they were trying to make the point that we made the
22 mistake a lot. 2Wire's attorney made the mistake a lot.

23 In fact, what they proved was it was absolutely
24 a cut and paste error. Look how many times shred showed up.
25 It got propagated across multiple patents.

1 So what the attorney was doing -- we got the
2 same disclosure -- he's claiming different aspects of the
3 same invention. Some transmitters, some receivers looking
4 at different aspects of the message being sent. And he cut
5 and pasted across and then went back. And he did his best,
6 he tried to change the words that were the right words to
7 change, but he obviously missed a couple of them. And some
8 of them, transmit was receive, receive was transmit.

9 And the Patent Office recognized that. They
10 issued a certificate of correction, made the corrections.
11 And we don't think there's any way 2Wire has established by
12 clear and convincing evidence that this isn't something that
13 was readily recognized as a clerical error.

14 Now, lastly, I want to explain to you how
15 important our patent system is. So the patent system, why
16 is it in the United States? Well, it's there because in the
17 very first article of the Constitution, Section 8, Clause 8,
18 the founders of the country realized that we needed a strong
19 patent system.

20 And why did they need that? Why did we need
21 that? Because in Europe, the system was broken. In Europe
22 what they did is they granted patents based on the friend
23 and family plan. The Monarch would give the buggy patent to
24 his brother-in-law. He would give the metallurgy patent to
25 his nephew.

1 And what did that do? It meant that progress
 2 was stagnate. If you don't have any incentive, if you just
 3 get it out of privilege and right, you're born into it,
 4 there's no incentive to make a better buggy, a faster buggy.
 5 There's no incentive to make better wheels. There's no
 6 incentive to make steel cheaper.

7 And that's why in the United States, we have the
 8 greatest innovation engine in the world because we have a
 9 strong patent system. So it's very important to incentivize
 10 our inventors.

11 And that's what happened here. Marcos Tzannes,
 12 he could have decided on a different career. He could have
 13 worked for a company that implemented technology and just
 14 let other people invent for him. But, no, he was
 15 incentivized because he had ability to collect patents on
 16 his inventions, and that gave him the right to exclude
 17 others. And by excluding others, yes, that gives you a
 18 right to collect some money. That's what your incentive is.

19 That's why in the United States, we invent
 20 vastly more than any other country in the world because we
 21 have a strong patent system. So it's very important to
 22 incentivize our inventors. It's a critical part of the
 23 reason why we have the best economy in the world.

24 Now, I'm going to take you through the verdict
 25 form here really quick. This is like a little multiple

1 choice test you're going to get when you go back and
 2 deliberate. I just want to explain to you that you're going
 3 to have sections on infringement, validity, and certificate
 4 of correction. And the way that these verdict forms are
 5 going to be filled out is they're just one question, but
 6 read the question, pay attention.

7 So this one, for example, is -- so it's going to
 8 explain to you that TQ Delta has the -- so the question is:
 9 Has TQ Delta proven by a preponderance of the evidence --
 10 the burden will be there to remind you -- that 2Wire -- has
 11 2Wire infringed corrected claim 5 of the '381 patent by
 12 making, selling, or offering to sell its product model
 13 numbers? And then the product model numbers are grouped
 14 according to chip set.

15 And we provided testimony why the 5031NV and the
 16 other models listed here that use the same chip. Well, they
 17 use two chips, but those two chips are related by the code
 18 base as Dr. Almeroth explained.

19 So these products are all lumped together, and
 20 they rise and fall together. So if you find that there's
 21 infringement of one of them, and you feel like we have shown
 22 adequately that they're the same product, essentially as far
 23 as DSL functionality goes, then you would answer this, you
 24 would answer this one yes. And this same question appears
 25 for each of our accused, I'm sorry, each of the asserted

1 claims. It's going to step you through the accused
 2 products.

3 So, for example, here is the claim 13 of the
 4 '882, and here is claim 13 of the '883 applied to the other
 5 grouping of products, i3812V and 3801HGV which uses the
 6 Broadcom chipset.

7 Similar questions again for the '048 patent.
 8 And there is a little key here, so you can confuse who
 9 you're finding for. It says checking yes finding for TQ
 10 Delta, checking no indicates a finding for 2Wire on the
 11 issue of infringement.

12 And then we have got obviousness, so 2Wire says
 13 the patents are invalid for obviousness. Remember, it's
 14 clear and convincing burden standard. If you feel they have
 15 not met that burden and we believe they have not, then the
 16 answer will be no, and no.

17 So this is LB-031 along with what's called the
 18 knowledge of ordinary skill in the art. The question is
 19 would someone had taken that reference and added shared
 20 memory to it, and we have shown you why it's not going to
 21 work together, so the answer would be no.

22 And this is -- and again, you're going to step
 23 through for each of the asserted patents and each of the
 24 asserted claims. And then we get to the certificates -- I'm
 25 sorry, whether the certificates of correction are valid.

1 And again, it's 2Wire's burden to prove by clear and
 2 convincing evidence that it was not clearly evident that it
 3 was -- you know, the double negatives here are a little
 4 tough.

5 Essentially what 2Wire has to prove, what you
 6 have to conclude by clear and convincing evidence is that
 7 they weren't cut and paste errors, that they clearly were
 8 not cut and paste errors, I guess that's the way to say it.
 9 They would have had to show that they clearly are not cut
 10 and paste errors in order for you to find for them. And we
 11 believe that you should find no, that they have not
 12 established that. So on the certificates of correction, on
 13 each corrected claim we have asked you to find in favor of
 14 TQ Delta.

15 And that concludes my opening presentation. I
 16 want to thank you again for your service. We ask you when
 17 you go back to deliberate to give due consideration to the
 18 evidence we put on, and find in favor of TQ Delta.

19 Thank you very much.

20 THE COURT: All right. Thank you,
 21 Mr. McAndrews.

22 Members of the jury, we're just going to take a
 23 short break here. So I'm going to ask that you be taken
 24 out.

25 (Jury leaving the courtroom at 9:59 a.m.)

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1 THE COURT: All right. So you all be seated.
 2 Mr. Schuman, is there anything you care to
 3 explain about why you were here at twelve minutes after
 4 9:00?
 5 MR. SCHUMAN: Only to apologize, Your Honor. As
 6 Ms. Walsh said, we didn't finish the closing arguments. I
 7 apologize.
 8 THE COURT: Did you just lose track of time?
 9 MR. SCHUMAN: Basically.
 10 THE COURT: How long do you think your closing
 11 argument is going to be?
 12 MR. SCHUMAN: As I said yesterday, I was aiming
 13 for thirty minutes, and the Court gave us forty-five. I'll
 14 certainly try to keep it under forty-five minutes.
 15 THE COURT: So would it be -- so by my count,
 16 you did get here twelve minutes late. I'm trying to figure
 17 out what the appropriate response is, because I never seen
 18 something like this before. It's probably too broad of a
 19 statement. But at least as a judge, I haven't seen
 20 something like this. Is there any reason why I shouldn't
 21 deduct the twelve minutes from your forty-five?
 22 MR. SCHUMAN: I'll get the closing done in
 23 thirty-three minutes if that's what Your Honor chooses.
 24 THE COURT: All right. I think that would be
 25 appropriate.

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1 Okay. Are you ready to go?
 2 MR. SCHUMAN: Can I have two minutes just to see
 3 whether there is any adjustments to the slides following
 4 Mr. McAndrews's closing?
 5 THE COURT: Yes. So why don't we take a
 6 five-minute break, or if you need more, tell me, but we're
 7 obviously moving along here.
 8 MR. SCHUMAN: Thank you, Your Honor.
 9 (A brief recess was taken.)
 10 THE COURT: All right. Are you ready to
 11 proceed, Mr. Schuman?
 12 MR. SCHUMAN: Yes, Your Honor.
 13 THE COURT: Okay. Let's get the jury.
 14 (Jury entering the courtroom at 10:11 a.m.)
 15 THE COURT: All right. Members of the jury,
 16 welcome back. Everyone, you may be seated.
 17 Mr. Schuman, you may proceed.
 18 MR. SCHUMAN: Thank you, Your Honor.
 19 Thank you, ladies and gentlemen, members of the
 20 jury. As you know by now, Mr. McAndrews and I disagree
 21 about quite a bit, but we both agree that your service is
 22 very important to the patent system and I, too, thank you
 23 for your service, your attention this week.
 24 As I said in my opening statement, I hope to
 25 give you the tools that you need to make the right decision

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1 in this case. This is not an easy case. But I hope that we
 2 have given you those tools through the witnesses we brought
 3 to you and the evidence we presented.
 4 As you know, this is a case involving patents
 5 that relate to a DSL standard. As Mr. McAndrews
 6 acknowledged, the patents are not required by that standard,
 7 but they relate to it, and Broadcom DSL chips.
 8 So we brought you Dr. Yu from California to tell
 9 you how the chips actually work. He explained it to you.
 10 And it is true, he has not read the patents. Unlike
 11 Dr. Almeroth and Dr. Cooklev, he has not read the patents.
 12 He just came to tell you how the chips actually work.
 13 And even though it's TQ Delta's burden of proof,
 14 Dr. Yu's testimony proves that the chips do not infringe TQ
 15 Delta's patents.
 16 TQ Delta did not even cross-examine him
 17 regarding how the chips work. This is the lead of the team
 18 who designed one of the chips and who managed the other
 19 chips for ten years. TQ Delta did not cross-examine him
 20 regarding the operation of the chips.
 21 We also brought you Dr. Jacobsen to explain how
 22 the DSL standard works, and more specifically about these
 23 max_delay_octet messages. As she testified, the standard
 24 does not tell the CPE side, the modem side, how much memory
 25 to use. It doesn't tell it the maximum amount of memory to

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1 use. It doesn't care. As long as the modem on the CPE side
 2 has the minimum required, it does not care how much more you
 3 use. Indeed as Dr. Jacobsen testified, it does not even
 4 report back to the central office how much memory I'm using.
 5 Dr. Jacobsen also testified as to her opinion
 6 that the patents are invalid. LB-031, she said, expressly
 7 discloses everything in Mr. Tzannes' patents, except it does
 8 not expressly disclose shared memory. But she testified
 9 there is only two kinds of memory, shared memory and
 10 dedicated memory.
 11 You had two choices and as she said, people of
 12 ordinary skill in the art at the time knew those were the
 13 two choices. It would have been obvious to use either
 14 shared memory or dedicated memory to implement LB-031.
 15 I would like to go through the evidence in just
 16 a little bit more detail. This was Ben Miller. He was the
 17 early engineer from 2Wire. You heard from him. He talked
 18 about 2Wire's award winning DSL modems. He began before Mr.
 19 Tzannes' patents were filed. And what he said was look,
 20 2Wire used to design its own chips, but we sold that
 21 division in 2009. Since then, everything that's relevant to
 22 this case, Broadcom. We buy the chips from Broadcom.
 23 These are the claims, you have seen these
 24 claims. I'm going to go through this relatively quickly.
 25 This is the receiving of the message. This is that message

1 that you heard so much about. TQ Delta pins its whole case
 2 on the max_delay_octet messages. Mr. McAndrews said in his
 3 opening statement, max_delay_octet, specifying the bytes, in
 4 bytes the maximum amount of deinterleaver memory.
 5 Mr. Tzannes said, that's what Michael Lund and I invented.
 6 And Dr. Cooklev also focused on the max_delay_octet fields
 7 of this O-PMS message as the allegedly infringing message.

8 Mr. McAndrews in his opening statement didn't
 9 talk so much about the max_delay_octet fields, he talked
 10 about $(I - 1)(D - 1) / 2$, different formula.
 11 Dr. Jacobsen explained that none of the 2Wire modems receive
 12 a message specifying a maximum number of bytes of memory
 13 available for either the interleaver or the deinterleaver.
 14 She explained what the max_delay_octet message does. I will
 15 not repeat her testimony, but what she said was it can
 16 convey information about a minimum amount of memory.

17 Maximum delay conveys information about the
 18 minimum amount of memory that you need to have, not maximum
 19 memory.

20 TQ Delta has to bowl a strike here. They have
 21 to knock over each one of these pins in order to prove
 22 infringement. If you find that even one of these elements
 23 is not met in the accused products, then your verdict should
 24 be for 2Wire. But it's not just the first element that's
 25 not met. We heard evidence about the determining step, the

1 next step in each of these claims. This is what Dr. Yu
 2 referred to as the theoretical method. This is the
 3 formulas. Dr. Cooklev was cross-examined about these
 4 formulas. Remember, he did some tests and in those test, he
 5 didn't measure memory for his test, he calculated it. And
 6 he calculated it using a formula, $(I - 1)(D - 1) / 2$. That was the formula that he used and he got
 7 that from the standard. When he was cross-examined by
 8 Mr. Kline, you might remember, he was asked about the
 9 formula 3 times MK plus 8 plus $(I - 1)(D - 1) / 2$.
 10 And what he said is well, Broadcom may be doing it
 11 in a proprietary way, and he didn't really provide much
 12 testimony about the formula itself.

14 Dr. Yu came yesterday and testified that the
 15 formulas that, the Broadcom products use to determine
 16 interleaver and deinterleaver memory are not $(I - 1)(D - 1) / 2$.
 17 There is different formulas for
 18 the interleaver side and the deinterleaver side of both of
 19 these two chips. None of those formulas are $(I - 1)(D - 1) / 2$.
 20

21 And Dr. Yu clearly testified for both chips, for
 22 both the interleaver side and the deinterleaver side that
 23 the amount of memory in the Broadcom chip is not constrained
 24 by these max_delay_octet fields.

25 I went through each of the sides of the two

1 chips with him and in all cases, he said they're not
 2 constrained by max delay. We allocate more memory than
 3 max_delay_octet.

4 So for that reason, TQ Delta cannot prove that
 5 this second step, determining the theoretical memory is met.
 6 And the allocating step is important. This is where the
 7 memory is allocated in the physical memory. Dr. Yu
 8 explained that the actual memory allocated in the Broadcom
 9 chips again for both chips for both the interleaver and the
 10 deinterleaver side exceeds max_delay_octet. It can exceed
 11 max_delay_octet.

12 It's a long formula, he said. It's essentially
 13 physical memory allocated for the hardware. So they are
 14 bigger, not smaller. They are exact. This is for the
 15 BCM6091 chip. For that chip the amount they allocate is
 16 exactly in the formula, but it's different for the other
 17 chip, the BCM61X68. I asked Dr. Yu, does the chip actually
 18 allocate the number that you referred to as the theoretical
 19 memory or does it allocate more in the physical memory.
 20 More because of how you need overhead on top of theoretical
 21 minimum memory.

22 Dr. Almeroth, smart guy, no doubt in the
 23 credibility of his testimony, he looked at the code, he did
 24 these function traces, but Dr. Yu has explained how they
 25 actually work. Not the theoretical what you can determine

1 from looking at the code on a source code computer, this is
 2 how they actually work. What they actually allocate in the
 3 physical memory. And that's a requirement of the claims and
 4 a requirement of each of the third element of these claims
 5 is that they allocate no more than the maximum amount
 6 specified in that message.

7 Now, Mr. McAndrews said and TQ Delta has
 8 suggested through the course of this trial that that's just
 9 extra memory. I think Mr. McAndrews referred to as
 10 peripheral memory. I think TQ Delta's position is that
 11 doesn't count, you shouldn't focus on the three times MK,
 12 that's just extra.

13 But Dr. Cooklev explained that this Z memory, Z
 14 bytes, is it needed to interleave the Reed-Solomon coded
 15 bytes? Yes. And Dr. Yu explained, does the chip allocate
 16 the number that you referred to as the theoretical memory or
 17 does it allocate more in the physical memory.

18 More, because of how you need the overhead on
 19 top of the theoretical minimum. When you say overhead, is
 20 that overhead required to actually do the interleaver on the
 21 interleaving side?

22 Yes. This is part of the interleaver, and the
 23 same thing on the deinterleaver side. And you can't just
 24 brush it aside and say, well, that's overhead.

25 This is Dr. Yu's testimony again for

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1 both sides, the interleaver and the deinterleaver of both of
2 the two Broadcom chips that are at issue in this case.

3 So, again, TQ Delta has to bowl a strike. They
4 have to prove to you that every single one of these elements
5 are met.

6 And while we don't bear the burden of
7 proof, we would submit that Dr. Yu's testimony, combined
8 with all the other evidence you've heard, establishes that
9 TQ Delta cannot meet that third element.

10 The pizza. We've heard a lot about
11 the pizza. It's my fault. I mentioned in the opening, I
12 said simple example. Maybe a little too simplistic. I
13 acknowledge that.

14 I said if I call my wife and ask for
15 two slices of pizza, that's the minimum. Hopefully she
16 saves me two slices.

17 But if I'm having dinner with Dr. Yu,
18 and I say, Dr. Yu, can you save me two slices of pizza? Dr.
19 Yu is going to allocate four because that's what he said
20 every one of those Broadcom chips do. They allocate more
21 than the theoretical minimum.

22 And most importantly, for purposes of
23 the claims in this case, they allocate more than the amount
24 specified in the max_delay_octet fields. That was his
25 testimony for both chips.

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1 Dr. Cooklev had this slide that
2 summarized his test. I won't belabor this point.
3 Dr. Cooklev, the data was fine, but he misinterpreted the
4 data by using this equation. He didn't actually measure the
5 memory in any of the chips. He measured the R-PMS message.

6 And from that, he used that formula to
7 calculate what the data in that R-PMS message meant. But
8 again, cross examination and Dr. Yu's testimony established
9 that that's just not the right formula for any of the
10 products that he tested. His infringement tests do not
11 prove infringement.

12 I want to move on to the invalidity
13 side of the case. This is the chronology I put up during my
14 opening statement. Mazzoni was in 2000. There's been some
15 different dates for Mazzoni, but all those dates are before
16 October 2004 which you heard in the Judge's instructions is
17 the relevant date for Mr. Tzannes' patents.

18 And then LB-031. You heard
19 Mr. McAndrews say that I acknowledged in my opening
20 statement that the products have shared memory. I did.
21 They do have shared memory.

22 It's also undisputed in this case that
23 Mazzoni discloses shared memory. Both the experts agree.

24 Dr. Cooklev, you agree that the
25 Mazzoni reference we have looked at discloses shared memory

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1 as that term has been construed by the Court for this case;
2 correct?

3 I think, yes.

4 Dr. Jacobsen agreed. It's not
5 something that you need to trouble yourselves with. The
6 experts agree shared memory is in the prior art. That prior
7 art Mazzoni was before October 2004, that important date.

8 And Dr. Jacobsen also testified that
9 shared memory was being discussed at the standards body.
10 Leuven, Belgium, June 14th to 18th, 2004. We heard a little
11 bit about this Leuven, Belgium meeting. This is the meeting
12 where Dr. Cory Modlin -- we heard his name. He's the author
13 of the LB-031 contribution piece of prior art.

14 That's where he contributed that, at
15 the Leuven, Belgium, June 14th to 18th, 2004 meeting. Mr.
16 Tzannes was there. He acknowledged it. About four months
17 later, he filed his patent application, October 2004.

18 LB-031, as Dr. Jacobsen testified, has
19 very similar language to the O-PMS description in the
20 standard itself. That's because it was part of the process
21 of forming the standard. This language, the actual amount
22 of required memory is implementation specific. Almost
23 verbatim, that same language is in LB-031 and in the
24 standard, the VDSL2 standard.

25 Now, TQ Delta disputes that LB-031 is

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1 prior art that invalidates the patents. Dr. Cooklev
2 admitted that LB-031 has a messaging scheme, has a messaging
3 scheme that at least discloses exchanging a maximum number
4 of bytes available in each direction; correct? That's what
5 is being exchanged. Fine. That's the max_delay_octet
6 message in VDSL2.

7 I mentioned this already, but
8 Dr. Jacobsen, in considering whether LB-031 discloses to a
9 person of ordinary skill in the art as of October 2004,
10 discloses -- renders obvious all of the elements of TQ Delta
11 claims on this one element that's not expressly disclosed.
12 She said, Well, look, there's only two kinds. When a person
13 of ordinary skill in the art picks up and reads LB-031, you
14 can do it in either dedicated memory or shared memory. And
15 importantly, LB-031 does not identify, either.

16 It is true, it does not identify
17 shared memory. It is equally true, it does not identify
18 dedicated memory. It's agnostic.

19 Dr. Jacobsen also testified regarding how a
20 person of ordinary skill in the art would have been
21 motivated to combine LB-031 with Mazzoni which is already
22 out there. And her testimony was about the flexibility.

23 Mazzoni was restrictive. It had shared memory
24 for interleaver and deinterleaver, but that was fixed.
25 Couldn't adjust which portions were for interleaver or which

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1 portions were for deinterleaver. But a person of ordinary
2 skill in the art, she testified would have recognized that
3 you could improve Mazzoni using the messaging scheme of
4 LB-031.

5 I'm going to move on to the certificates of
6 correction. So there's a lot of typos. Alleged typos.
7 There's a lot of mistakes across a lot of patent claims.

8 Dr. Jacobsen offered the opinion, Look, when I
9 consider the specification talking about how broad this
10 patent is, how many different ways you can implement the
11 technology in this patent, when I consider the file
12 histories, the filings of the Patent Office to get these
13 patents, and how these patents got made, she offered the
14 opinion that it's not obvious to a person of ordinary skill
15 that these words in the claims as they originally issued
16 were just typos.

17 Dr. Cooklev who's a professor at Purdue,
18 engineering professor testified extensively yesterday that
19 it must just be cut and paste errors. He's just
20 speculating. TQ Delta did not bring -- you did not hear
21 from Mr. Vick. You heard his name yesterday, the attorney
22 who actually wrote these claims. Instead, Dr. Cooklev
23 speculated this could be cut and paste.

24 I want to conclude by taking you through the
25 verdict form. There we go.

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1 It starts on Page 2. Some of these questions
2 about infringement, if you agree with us that TQ Delta has
3 not proved infringement, you check no in each of these
4 boxes.

5 Claim 5 of the '381 patent is question number
6 one.

7 '882 patent, question number two.

8 Claim 13 of the '882 patent, question number
9 three.

10 And I should clarify there's a lot of numbers on
11 the verdict form. You've heard product numbers during the
12 course of the case, and you've heard the Broadcom chip
13 numbers. So these questions are grouped together according
14 to which products go with which Broadcom chip numbers. So
15 for example, in Section 2, claim 13 of the '882 patent,
16 these are the products that correspond to the BCM6368 and
17 63168 chip sets.

18 Question four, infringement of the '048 patent
19 by the 63168. If you agree with 2Wire, check no in that
20 box.

21 Claim one of the '048 patent as to the BCM6091
22 chip and the products associated with that, if you agree
23 with us, check no in that box.

24 Before I do the obviousness section, I want to
25 just -- I want to just talk a little bit about why an

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1 inventor is not entitled to a patent on something that is
2 obvious. Again, one of the things that Mr. McAndrews and I
3 agree about is the importance of the U.S. patent system.
4 But innovation is actually stifled if patents are issued on
5 obvious things.

6 The way the bargain works is if you come up with
7 something that is not obvious that advances the state of the
8 art, then you get that deed. You get that piece of
9 property, that intellectual property that gives you that
10 right to exclude people from your property. But if you
11 don't come up with something that's nonobvious, I know it's
12 a tongue twister, but if you don't come up with something
13 that's nonobvious, you haven't advanced the state of the
14 art, you're not entitled to that patent. So we agree the
15 patent system is important. We agree that inventors of new
16 and nonobvious inventions are entitled to that intellectual
17 property, that right to exclude. But not if what you have
18 invented doesn't advance the state of the art. You don't
19 get to exclude others for roughly twenty years.

20 So if you agree that the evidence we have
21 presented proves that each of the TQ Delta patents is
22 obvious, then you check the yes box.

23 And there is two choices on the verdict form.
24 You heard about LB-031, the contribution in Leuven, as
25 interpreted by somebody of ordinary skill in the art. And

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1 then there is a second question for LB-031 together with the
2 Mazzoni patent, the one that the experts agree discloses the
3 shared memory of the patent claims in this case.

4 So for claim 5 of the '381 patent if you agree
5 with 2Wire, check yes, that claim is invalid.

6 Question 6B is the combination of LB-031 and
7 Mazzoni. If you agree with us, you check yes for 2Wire.

8 Claim 13 of the '882 patent, this is similar, if
9 you agree the evidence shows that LB-031 renders obvious
10 that claim, you check yes. If you agree that LB-031 in
11 combination with Mazzoni renders obvious that claim, you
12 check yes.

13 Same two questions for the '048 patent, if you
14 agree with 2Wire on either LB-031 as understood by a person
15 of ordinary skill in the art or LB-031 together with
16 Mazzoni, check yes.

17 The validity of certificates of correction,
18 basically whether it's an obvious typo and a person of
19 ordinary skill in the art would have recognized it as an
20 obvious typo that could have obviously been corrected, 2Wire
21 has presented evidence that it is not obvious testimony,
22 Dr. Jacobsen's testimony, if you agree with us, check yes
23 for each of the two certificates of correction.

24 I want to end by thanking you again for your
25 time this week. It's a very important case to my client,

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1 2Wire. And we appreciate your time.
 2 Thank you.
 3 THE COURT: All right. Thank you, Mr. Schuman.
 4 Mr. McAndrews. Do you need any time,
 5 Mr. McAndrews, to set things up or are you ready to go?
 6 MR. MCANDREWS: No, I believe we're ready to go.
 7 Thank you.
 8 THE COURT: All right.
 9 MR. MCANDREWS: So I get to have a brief moment
 10 here to respond to some of that.
 11 So in no particular order I want to start with
 12 this discussion about a meeting in Belgium that was raised
 13 at the end of the day yesterday. I want to put it up on the
 14 board here because Mr. Schuman didn't tell you the whole
 15 story. He didn't explain to you what Mr. Tzannes said after
 16 Mr. Tzannes had a chance to say what was going on in the
 17 document in Belgium. If we could pull that up, please.
 18 So what you didn't hear from Mr. Schuman was the
 19 final answer that was given by Mr. Tzannes which was the
 20 most important thing to understand about what went on in
 21 Belgium. I want to explain to you as an initial matter,
 22 that's not prior art. What went on in Belgium, not prior
 23 art. You're not going to find it on the verdict form. What
 24 you're going to find on your verdict form is the two
 25 combinations that they presented evidence on in the case,

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1 that's LB-031 in view of the knowledge of ordinary skill in
 2 the art and LB-031 and Mazzoni, that was their position.
 3 This Belgium thing is not prior art.
 4 In any event, I'll tell you why it's not, even
 5 if it was prior art, it's not relevant. Because what
 6 Mr. Tzannes said here, and in this document that was shown
 7 to Mr. Tzannes, they said aren't there two paths and aren't
 8 they sharing memory? And the answer is yes, that's true,
 9 there is two paths and they're sharing memory. Do you know
 10 what that is? It's two paths in the same direction. Do you
 11 see that? In the same direction, you have a fast path and a
 12 slow path in the same direction. It's like the figure here,
 13 latency path one on the top, we didn't talk at all about the
 14 second latency path because it would have added a layer of
 15 complexity that's not relevant to the case. You have a fast
 16 path and a slow path. What that means, if you share memory,
 17 if you share memory it shares memory between two
 18 interleavers. It shares memory between two interleavers.
 19 But in any event, there are two interleavers going in the
 20 same direction, that's not sharing memory between an
 21 interleaver and a deinterleaver where there is going to be
 22 some coordination required to do that. It's on the same end
 23 of the line. You don't have to send a message to anybody.
 24 It's just like I'm going to share my left pocket with the
 25 right pocket, I don't need to tell anybody how I'm going to

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1 do that. That's all this means. This is not relevant to
 2 the invention.
 3 And certainly what you're not going to find in
 4 the document because this is how it would work, you're not
 5 going to find any discussion of messaging. There is no
 6 memory sharing message at all because there doesn't have to
 7 be. That was a little bit of misdirection I think on their
 8 part.
 9 I want to talk about LB-031. They want to make
 10 it sound like -- we don't need the slide for this. They
 11 want to make it sound like you got LB-031 and you got two
 12 choices, it's a limited number of choices, it might be
 13 shared memory, it might be dedicated memory.
 14 Well, a skilled engineer is not going to pick,
 15 if they got two choices, the skilled engineer is not going
 16 to pick the version of that that doesn't work. A hundred
 17 percent of the time they're going to pick the only version
 18 of that that works and that's dedicated memory. They didn't
 19 provide any rebuttal, you didn't hear any testimony from
 20 anyone on their side of this case explaining how you would
 21 make LB-031. You didn't see anybody stepping through
 22 messages the way we did. They didn't provide any testimony
 23 at all but through our testimony that you can't do it. You
 24 have no way to swap memory from the interleaver to the
 25 deinterleaver. From the upstream to the downstream. There

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1 is no way to do it. So they're not equal choices. In fact,
 2 there is no choice, there is a single choice with LB-031 and
 3 that is you got to use dedicated memory all the time.
 4 Now, he mentioned that we didn't cross-examine
 5 Dr. Yu who was supposed to provide this earth shattering
 6 testimony that never arrived. We did. We did cross-examine
 7 him. We kept it short. We didn't want to belabor it. And
 8 he testified that he wasn't even aware of the patent. He
 9 had never reviewed the claims, so he didn't know what
 10 functionality he was trying to compare.
 11 The other reason we didn't cross-examine him is
 12 because you don't cross-examine somebody and try to
 13 discredit them when they support your side of the case.
 14 That's what Dr. Yu did. Why would we try to change his
 15 testimony when he confirmed that \max_delay_octet and $1 \text{ minus } 1 \text{ D minus } 1 \text{ over } 2$ are exactly how much memory is used for
 16 the interleaver and the deinterleaver.
 17 Yeah, he called it theoretical. That's a fancy
 18 word they wanted to confuse you with. It's not theoretical.
 19 That is exactly how much memory that the product uses for
 20 its interleaver and the deinterleaver. And the remainder of
 21 his testimony was that the other memory is being used as
 22 overhead. That's pointers, that's things that are not the
 23 interleaver and the deinterleaver number. It's not the
 24 memory that is storing Reed-Solomon coded data. It's not
 25

1 that memory. You don't even need to store it in the same
2 memory. We heard testimony that sure it can be stored in
3 the same block of total memory, but it doesn't have to be
4 there. It can be somewhere else and the reason it can be
5 somewhere else is because it's not the interleaver and
6 deinterleaver memory itself.

7 So I just want to kind of wrap this up here. I
8 don't think there is any doubt that Mr. Tzannes did advance
9 the state of the art. 2Wire has used hindsight, pieced
10 together some incompatible elements of the prior art and say
11 there it is, you know, someone already did that. Well, they
12 didn't do that. What they're doing is using the patent,
13 picking out pieces like they're walking down a shopping
14 aisles and saying this looks like a patent, this looks like
15 a patent, let's put them together in a shopping cart. They
16 never thought if they went together. They don't go
17 together. I'm trying to think of an analogy of two items of
18 food that you would eat at home, but that's not what this
19 is, you pull one off the shelf and pull one off the shelf
20 and try them in a dish and it tastes horrible, it doesn't
21 work. And that's what they did. And they used hindsight to
22 do this.

23 THE COURT: Mr. McAndrews, your time is up.

24 MR. MCANDREWS: Yes, Your Honor.

25 So they try to trivialize. They talk about

1 pizza and parking lots. That's not this. This is complex
2 technology. They put on superficial witnesses.

3 That's not the evidence that you should rely on.
4 The evidence you should rely on is the specific detailed
5 evidence that we put on showing you lines of source code.

6 They didn't do that. It's just nothing on their
7 side of the case that tips the scales in their favor, so I'd
8 ask you to return a verdict in favor of TQ Delta.

9 Thank you very much.

10 THE COURT: Thank you, Mr. McAndrews. So
11 members of the jury, let me finish up by explaining some
12 things about your deliberations in the jury room and your
13 possible verdicts.

14 Once you start deliberating -- excuse me.

15 Mr. Dorsney, if you don't mind, would you
16 actually mind staying. I want to talk to you about
17 something when we're done here.

18 So let me finish by explaining some things about
19 your deliberations in the jury room and your possible
20 verdicts.

21 Once you start deliberating, do not talk to the
22 jury officer, or to me, or to anyone else except each other
23 about the case. If you have any questions or messages, you
24 must write them down on a piece of paper, sign them, and
25 then give them to the jury officer. The officer will give

1 them to me, and I will respond as soon as I can which will
2 probably be slower than you would expect because I will have
3 to talk to the lawyers about what you've asked. So it may
4 take me some time to get back to you. Any questions or
5 messages normally should be sent to me through your
6 foreperson who by custom of this Court is Juror Number 1.
7 You.

8 So one more thing about messages. Do not ever
9 write down or tell anyone how you stand on your votes. For
10 example, do not write down or tell anyone that you're spit
11 four to 4, six to two, or whatever your vote happens to be.
12 That should stay secret until you're finished.

13 Your verdict must represent the considered
14 judgment of each juror. In order for you as a jury to
15 return a verdict, it is necessary that each juror agree to
16 the verdict. Your verdict must be unanimous.

17 It is your duty as jurors to consult with one
18 another and to deliberate with a view towards reaching an
19 agreement if you can do so consistent with your individual
20 judgment. Each of you must decide the case for yourself,
21 but do so only after an impartial consideration of the
22 evidence with your fellow jurors. In the course of your
23 deliberations, do not hesitate to reexamine your own views
24 and change your opinion if convinced that it is erroneous.
25 But do not surrender your honest conviction as to the weight

1 or effect of the evidence solely because of the opinion of
2 your fellow jurors, or for the purpose of returning a
3 verdict. Remember at all times that you are not partisans.
4 You are judges of the facts. Your sole interest is to seek
5 the truth from the evidence in the case.

6 A form of verdict has been prepared for you.
7 You need to answer the questions on the verdict form
8 regarding infringement and invalidity. You will take this
9 form to the jury room, and when you've reached unanimous
10 agreement as to your verdict, you will have your foreperson
11 fill in, date, and sign the form. You will then return to
12 the courtroom, and your foreperson will give your verdict.

13 Now that all of the evidence is in and the
14 arguments are completed, you are free to talk about the case
15 in the jury room. In fact, it is your duty to talk to with
16 each other about the evidence and make every reasonable
17 effort you can to reach unanimous agreement. Talk with each
18 other. Listen carefully and respectfully to each other's
19 views, and keep an open mind as you listen to what your
20 fellow jurors have to say. Try your best to work out your
21 differences. Do not hesitate to change your mind if you're
22 convinced other jurors are right and that your original
23 position was wrong.

24 But do not ever change your mind just because
25 other jurors see things differently or just to get a case

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1 over with. In the end, your vote must be exactly that, your
2 own vote. It is important for you to reach unanimous
3 agreement, but only if you can do so honestly and in good
4 conscience.

5 No one will be allowed to hear your discussions
6 in the jury room, and no record will be made of what you
7 say. So you should all feel free to speak your minds.

8 Listen carefully to what the other jurors have
9 to say, and then decide for yourself.

10 During your deliberations, you must not
11 communicate with or provide any information to anyone by any
12 means about the case. You may not use any electronic device
13 or media such as telephones, smart phones, computer
14 Internet, websites such as Facebook, Instagram, Snapchat,
15 MySpace, LinkedIn, YouTube or Twitter to communicate with
16 anyone any information about this case or to conduct any
17 research about this case until I accept your verdict. In
18 other words, you cannot talk to anyone on the phone,
19 correspond with anyone, or electronically communicate with
20 anyone about this case. You can only discuss the case in
21 the jury room with your fellow jurors during deliberations.

22 Now, let me finish up by repeating something
23 that I said to you earlier. Nothing that I've said or done
24 during this trial was meant to influence your decision in
25 any way. You must decide the case yourself based on the

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1 evidence presented.

2 And then the last page is the Claim Construction
3 Order which has the three terms that I've construed that you
4 have to follow.

5 All right. Are there any objections to the jury
6 instructions as read?

7 MR. MCANDREWS: No Your Honor.

8 MR. SCHUMAN: No Your Honor.

9 THE COURT: All right. Do we have a court
10 security officer here?

11 (Discussion held off the record.)

12 THE COURT: So someone is on their way. All
13 right.

14 So members of the jury, you just have to wait
15 for a minute because I have to swear the court security
16 officer to help hold you in some safe and good place
17 until -- well, while you're deliberating. Usually they're
18 here, so I'm kind of surprised that no one is here right
19 now.

20 It's an amazing thing. We have 30 court
21 security officers in the building, and many of them are
22 experienced at doing this, so I'm -- all right.

23 Sir, can you come forward?

24 DEPUTY CLERK: Do you solemnly swear that you
25 will keep this jury in some quiet and convenient place, that

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1 you will not suffer anyone to speak to them nor speak to
2 them yourself touching the issue before them unless it be to
3 ask them if they have agreed upon their verdict, so help you
4 God?

5 THE MARSHAL: I do.

6 DEPUTY CLERK: Thank you.

7 THE COURT: All right. Can you take the jury to
8 the jury room?

9 THE MARSHAL: Yes, Your Honor.

10 (Jury leaving the courtroom at 10:56 a.m.)

11 THE COURT: All right. So you all can be
12 seated. What I'd like to do is for the plaintiff or whoever
13 has the exhibits or maybe the parties to get them to the
14 Deputy Clerk. I'd like to see Mr. Dorsney, Mr. McAndrews,
15 and Mr. Farnan in chambers for a minute, which you can come
16 in through this way.

17 I'd appreciate it Mr. Schuman and Mr. Barillare
18 if you, at a minimum, would hang around because I would also
19 like to talk to you about something else. And I would
20 suggest -- well, I would require that someone make sure that
21 there is a phone number that the clerk can reach you if
22 there's a verdict or a question.

23 If we do have a question, I authorize the clerk
24 to tell you what it is, but that's not for you to delay
25 getting back here. And I would request that at least for

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1 the next 15 minutes or so that people hang around here just
2 in case something happens.

3 Okay? So Mr. McAndrews. Mr. Dorsney.

4 DEPUTY CLERK: All rise.

5 (Recess was taken.)

6 COURT CLERK: All rise.

7 THE COURT: All right. Please be seated.

8 So we have a note from the jury sent at what I
9 assume was 12:04, mine says 2:04. And it says, and I quote,
10 "Please provide the document that was used multiple times
11 outlining all of the claims."

12 I'm not a hundred percent sure which document
13 the jury is talking about. I'm just curious because do you
14 all actually know?

15 MR. MCANDREWS: Your Honor, we've spoken, and we
16 don't think we know, but we've been talking about what we
17 think it might be. It's not any document that we know that
18 really exists in a clean form yet, but we're talking on
19 agreeing on something that just sets the claims side by side
20 plain vanilla.

21 THE COURT: Yeah. Okay.

22 So Mr. Schuman, do you have anything to add?

23 MR. SCHUMAN: I think what they're asking for is
24 a document that's not in evidence, and they may be referring
25 to various demonstratives where I think both Mr. McAndrews

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1 and I at different times, openings, closings, and with
2 witnesses have displayed.

3 THE COURT: I mean, it's a thing that has six
4 different products, and somehow it has the chip numbers? I
5 mean, I'm not saying this is a hundred percent for sure, but
6 aren't they trying to get information that at the last
7 minute we tried to put into the verdict form?

8 MR. SCHUMAN: My interpretation, Your Honor, of
9 the note is a little bit different. I think I interpret --
10 and Mr. McAndrews and I were speaking about it briefly -- as
11 if they're asking about the patent claims.

12 THE COURT: Oh, you mean like the elements?

13 MR. SCHUMAN: Yeah. Yes.

14 THE COURT: Yeah.

15 MR. SCHUMAN: And I think both Mr. McAndrews and
16 I, whether it's checkmarks, or X's, or highlighting have had
17 various versions of that, but I don't know -- I know that
18 those versions are not in evidence, and I don't know that
19 there's a clean version without somebody's highlighting or
20 checkmarks.

21 THE COURT: Well, I would be pretty confident
22 that the -- if you're right about what they're asking for,
23 that it's not in evidence.

24 And Mr. McAndrews, this probably is unimportant
25 really, but what do you think they're asking for? I mean,

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1 recognizing that you don't have to be a hundred percent
2 certain, but what's the thing what do you think most likely
3 they're asking for?

4 MR. MCANDREWS: Well, when I came into the
5 courtroom, Mr. Schuman had a document on his phone, and it's
6 just the claims listed, the three of them side by side. I
7 looked at it. We kind of agreed that that might be what
8 they're looking for.

9 THE COURT: Okay.

10 MR. MCANDREWS: As long as it's cleaned up,
11 there's no checkmarks, and there's no indication of who's
12 providing it.

13 THE COURT: Well, I take it -- because one thing
14 that one could do is just say, Sorry, it's not in evidence.
15 Good luck. But I think that if there were a way to provide
16 them what we think they're asking for in a fashion that has
17 no prejudice towards either side, that might actually be
18 helpful to their deliberations.

19 So is that what you want to do is basically
20 find -- you know, print out -- I mean, if Mr. Schuman has it
21 on his phone, we can always print it here. Is that what you
22 want to do is, assume what it is most likely that they're
23 asking for, send them back the thing in vanilla, and wait
24 around to see if they were actually asking about something
25 else, figuring that at worst, sending them what we think

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1 they're asking for, has no harmful effect?

2 MR. MCANDREWS: We're certainly okay with that,
3 Your Honor.

4 MR. SCHUMAN: We would be as well.

5 THE COURT: Okay. I was trying to summarize
6 what I thought you all were talking about. But I'm
7 perfectly happy to do that if there's agreement on both
8 sides.

9 And if you want to spend some more time looking
10 at Mr. Schuman's phone or otherwise provide -- I mean, I
11 thought in the demonstratives -- I guess the problem with
12 the demonstratives is they all had headings and things, and
13 presumably you've already taken down all of your computer
14 capability.

15 All right. Well, why don't we -- I told them it
16 would take a while to get back to something. Why don't you
17 see if you can come up with such a document. And if so, I
18 will essentially paperclip it to this and just send it back.

19 That's agreeable?

20 MR. SCHUMAN: Yes, Your Honor.

21 MR. MCANDREWS: Yes, Your Honor.

22 THE COURT: Well, I guess when you've got such a
23 document or if you want to email it to the Deputy Clerk,
24 have her print it out and attach it. We can do that, too.
25 But I guess until you give me such a document, there's not

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1 much to be done; right?

2 MR. SCHUMAN: Right.

3 MR. MCANDREWS: Right.

4 MR. SCHUMAN: Thank you, Your Honor.

5 THE CLERK: All rise.

6 (Recess was taken.)

7 THE CLERK: All rise.

8 THE COURT: All right. You can be seated. Even
9 though I'm out here, we're not really going to do anything
10 until somebody shows up for the plaintiff. But it seems to
11 be -- well, in any event. We don't need to have this on the
12 record.

13 (Plaintiff's counsel entered the courtroom.)

14 THE COURT: Are you ready?

15 MR. FARNAN: Can we wait two more minutes?

16 Mr. Prange is right behind us. Sorry.

17 THE COURT: Okay.

18 (Mr. Prange entered the courtroom.)

19 MR. FARNAN: All right, Your Honor.

20 THE COURT: Okay. All right. Let's get the

21 jury.

22 (Jury entering the courtroom at 3:46 p.m.)

23 THE COURT: Members of the jury, welcome back.

24 Mr. Foreperson, has the jury unanimously agreed upon the
25 verdicts?

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1 THE JUROR: Yes.

2 THE COURT: All right. I'm going to ask the

3 Deputy Clerk to go over and get the verdict form from the

4 foreperson.

5 All right. Could we -- oh, I'm sorry. Everyone

6 can be seated.

7 So I'm going to ask the Deputy Clerk to publish

8 the verdict which essentially means to read it out loud.

9 It's possible that you could be asked when she's done

10 whether you individually agree with the verdict as read, so

11 please listen carefully so that you hear what she's reading.

12 All right. Go ahead, please.

13 DEPUTY CLERK: The verdict reads: Has TQ Delta

14 proven by a preponderance of the evidence that 2Wire

15 infringed corrected claim 5 of the '381 patent by making,

16 selling, and/or offering to sell the product model numbers

17 5031NV, 5168NV, 5168N and 5268AC?

18 Answer: Yes.

19 Has TQ Delta proven by a preponderance of the

20 evidence that 2Wire infringed corrected claim 13 of the '882

21 patent by making, selling, and/or offering to sell its

22 product model numbers 5031NV, 5168NV, 5168N, and 5268AC?

23 Answer: Yes.

24 Has TQ Delta proven by a preponderance of the

25 evidence that 2Wire infringed corrected claim 13 of the '882

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1 patent by making, selling, and/or offering to sell its

2 product model numbers i3812V and 3801HGV?

3 Answer: Yes.

4 Has TQ Delta proven by a preponderance of the

5 evidence that 2Wire infringed claim 1 of the '048 patent by

6 making, selling, and/or offering to sell its product model

7 numbers 5031NV, 5168NV, 5168N, and 5268AC?

8 Answer: Yes.

9 Has TQ Delta proven by a preponderance of the

10 evidence that 2Wire infringed claim 1 of the '048 patent by

11 making, selling, and/or offering to sell the product model

12 numbers i3812V and 3801HGV?

13 Answer: Yes.

14 Has 2Wire proven by clear and convincing

15 evidence that claim 5 of the '381 patent is invalid as

16 obvious in view of the disclosure of LB-031 as understood by

17 a person of ordinary skill in the art?

18 Answer: No.

19 The disclosure of LB-031 in combination with the

20 disclosure of Mazzoni?

21 Answer: No.

22 Has 2Wire proven by clear and convincing

23 evidence that claim 13 of the '882 patent is invalid as

24 obvious in view of the disclosure of LB-031 as understood by

25 a person of ordinary skill in the art?

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1 Answer: No.

2 The disclosure of LB-031 in combination with the

3 disclosure of Mazzoni?

4 Answer: No.

5 Has 2Wire proven by clear and convincing

6 evidence that claim 1 of the '048 patent is invalid as

7 obvious in view of the disclosure of LB-031 as understood by

8 a person of ordinary skill in the art?

9 Answer: No.

10 The disclosure of LB-031 in combination with the

11 disclosure of Mazzoni?

12 Answer: No.

13 Has 2Wire proven by clear and convincing

14 evidence that the error in claim 5 of the '381 patent was

15 not clearly evident to a person of ordinary skill in the art

16 or that the correction of that error would not have been

17 clearly evident to a person of ordinary skill in the art?

18 Answer: No.

19 Has 2Wire proven by clear and convincing

20 evidence that the error in claim 13 of the '882 patent was

21 not clearly evident to a person of ordinary skill in the art

22 or that the correction of that error would not have been

23 clearly evident to a person of ordinary skill in the art?

24 Answer: No.

25 THE COURT: All right. Thank you.

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1 Are there any requests from the parties?

2 MR. SCHUMAN: No, Your Honor.

3 MR. MCANDREWS: No, Your Honor.

4 THE COURT: All right. So members of the jury,

5 that concludes your service in this case. And so in a

6 moment, I'm going to excuse you, and you'll be taken out.

7 I know it's late in the day. I plan to come

8 back within a minute to thank you personally, but if you're

9 in a hurry to get somewhere else, don't hang around for me.

10 But I will be back there if you are still there.

11 All right. So if you want to take the jury out,

12 please.

13 (Jury leaving the courtroom at 3:52 p.m.)

14 THE COURT: All right. So I will enter a trial

15 verdict that reflects the verdict that's just been read.

16 And is there anything further today?

17 MR. MCANDREWS: No, Your Honor.

18 MR. SCHUMAN: No, Your Honor.

19 THE COURT: All right. Well, thank you very

20 much for your time and attendance this week, and your

21 professionalism in presenting your cases in the time that we

22 had. And I will be seeing you all down the road.

23 THE CLERK: All rise.

24 (Court was recessed at 3:53 p.m.)

25